Copyright 1907, by "THE ARCHITECTURAL RECORD COMPANY." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress of March 3d, 1879.

VOL. XXI. NO. 5. MAY, 1907 WHOLE NO. 104

THE ARCHITECTURAL RECORD

CONTENTS

PAGE

AMERICAN SCHOOLS OF ARCHITECTURE. Columbia University. The Teaching of Architectural Design 321
Illustrated Article. Prof. A. D. F. Hamlin.

AMBITIONS OF THREE CITIES. St. Paul, St. Louis and Boston Civic Reports 337
Illustrated Article. Charles Mulford Robinson.

"CIVIC IMPROVEMENTS." The Case of New York 347
Article. Herbert Croly.

A NEW RACE COURSE FOR PARISIANS. Champ de Course du Tremblay 353
Illustrated Article. Jean Schopfer.

THE JESSE TREE. A Comparative Study of Myths and Symbols 360
Illustrated Article. Caryl Coleman.

THE TWO CARRARAS. Europe's and America's Great Marble Regions 371
Illustrated Article. W. G. Fitz Gerald.

THE EVOLUTION OF THE MODERN WAREHOUSE. The Terminal Warehouse, Kansas City, Mo. 379
Illustrated Article. A. O. Elzner.

SOME INTERESTING STUDIO APARTMENTS 385
33 W. 67th St., New York. Illustrations.

NOTES AND COMMENTS—Illustrated 389
Progress in Architectural Education—Architecture's Opportunity—Report of the New York Art Commission—Echoes of the League Dinner—Another Billboard Story—Skyscrapers in a Half-Light—Chinatown Architecture—A Church Plans Jury—American Art in Iron and Bronze—Chateau des Beaux Arts—The Implied Contract, Tiles Meritorious and Meretricious.

TECHNICAL DEPARTMENT 395
The Art of Piano Designing.

C. W. SWEET, Publisher R. W. REINHOLD, Business Mgr.
H. W. DESMOND, Editor H. D. CROLY, Associate Editor

Subscription (Yearly), $3.00 **Published Monthly**

TWENTY-FIVE CENTS

THE ARCHITECTURAL RECORD CO. NEW YORK

TWENTY-FIVE CENTS

OFFICE OF PUBLICATION: No. 11 EAST 24th STREET, NEW YORK CITY.
WESTERN OFFICE: 511 MONADNOCK BLDG., CHICAGO, ILL.

CHVRCH GLASS AND DECORATING COMPANY
OF NEW YORK.

COPYRIGHT, 1907, BY CHURCH GLASS AND DECORATING CO. OF NEW YORK

A HARDMAN STAINED-GLASS WINDOW ERECTED IN MEMORY OF MAJOR-GENERAL BUTTERFIELD IN ST. CORNELIUS' CHAPEL, GOVERNOR'S ISLAND, NEW YORK HARBOR

TWENTY-EIGHT WEST THIRTIETH STREET.

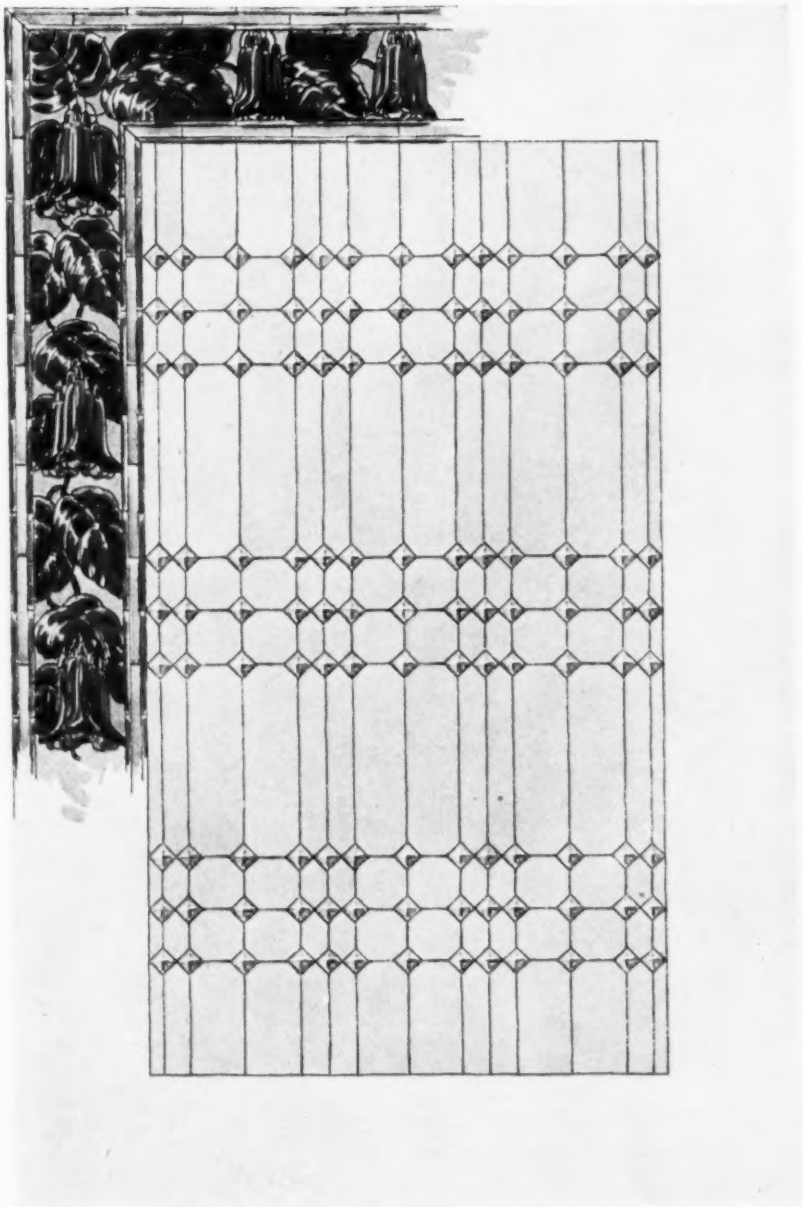
CHVRCH GLASS AND DECORATING COMPANY
OF NEW YORK.

COPYRIGHT, 1907, BY CHURCH GLASS AND DECORATING CO. OF NEW YORK

DINING-ROOM WINDOW IN OPALESCENT GLASS

TWENTY-EIGHT WEST THIRTIETH STREET.

CHVRCH GLASS AND DECORATING COMPANY OF NEW YORK.



COPYRIGHT, 1907, BY CHURCH GLASS AND DECORATING CO. OF NEW YORK

SKYLIGHT IN OPALESCENT GLASS

TWENTY-EIGHT WEST THIRTIETH STREET.

COPYRIGHT, 1907, BY CHURCH GLASS AND DECORATING CO. OF NEW YORK

ONE OF FIVE HARDMAN WINDOWS IN THE APSE, ST. JOHN'S CHURCH, LOWER MERION, PA.
FROM THE STUDIO OF THE CHURCH GLASS AND DECORATING COMPANY OF NEW YORK

The
Architectural Record

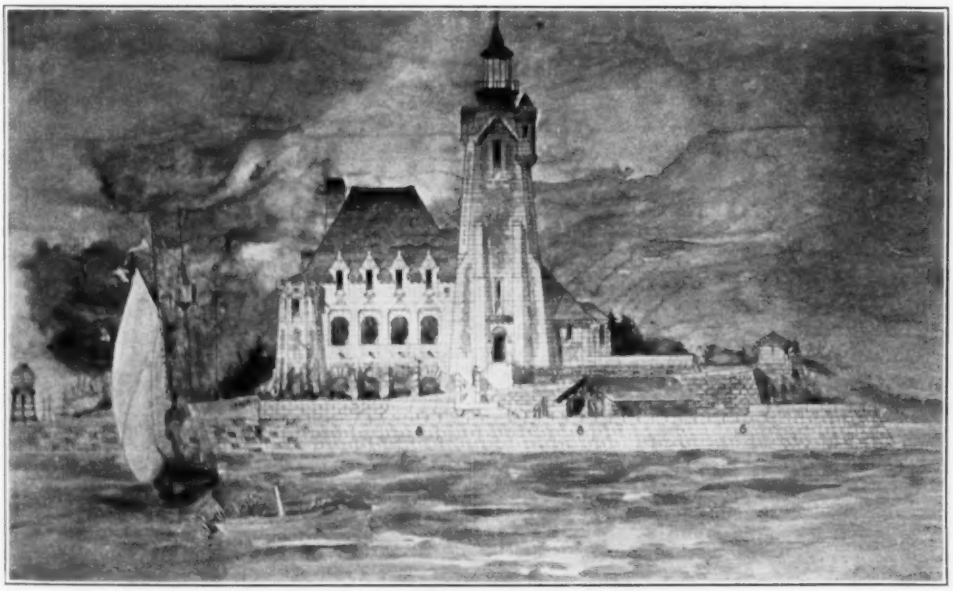
Vol. XXI MAY, 1907 No. 5

American Schools of Architecture

1. Columbia University

The Teaching of Architectural Design

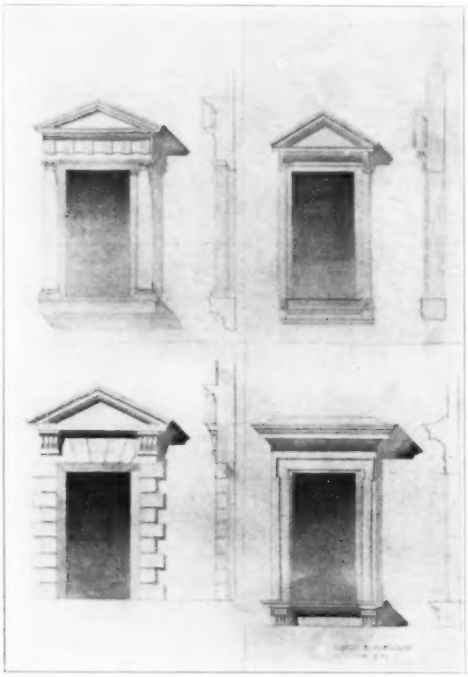
The study and teaching of architectural design are the crowning function of any school of architecture. This does not necessarily mean that design comes either earliest or last in the order of time, nor that it necessarily takes up more hours than all or any other subjects of instruction. All other subjects are, however, in varying measures subsidiary to it. The architect is rightly supposed to be and should always be first and foremost an artist in buildings; that is to say, a creator of beauty in the composition and harmonious arrangement of all parts of an edifice. He is thus very much more than engineer or builder, and the art which he practices is a fine art and not merely a useful one.



A CUSTOMS STATION AND LIGHTHOUSE ON THE GREAT LAKES.
(Advanced Design.)

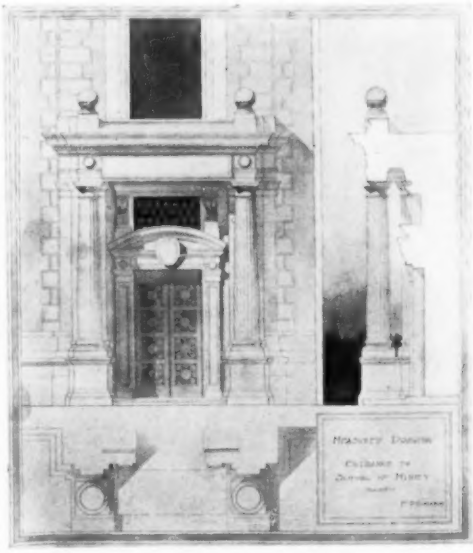
But for the very reason that excellence in design is so largely a matter

Copyright, 1907, by "The Architectural Record Company." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress of March 3d, 1879.

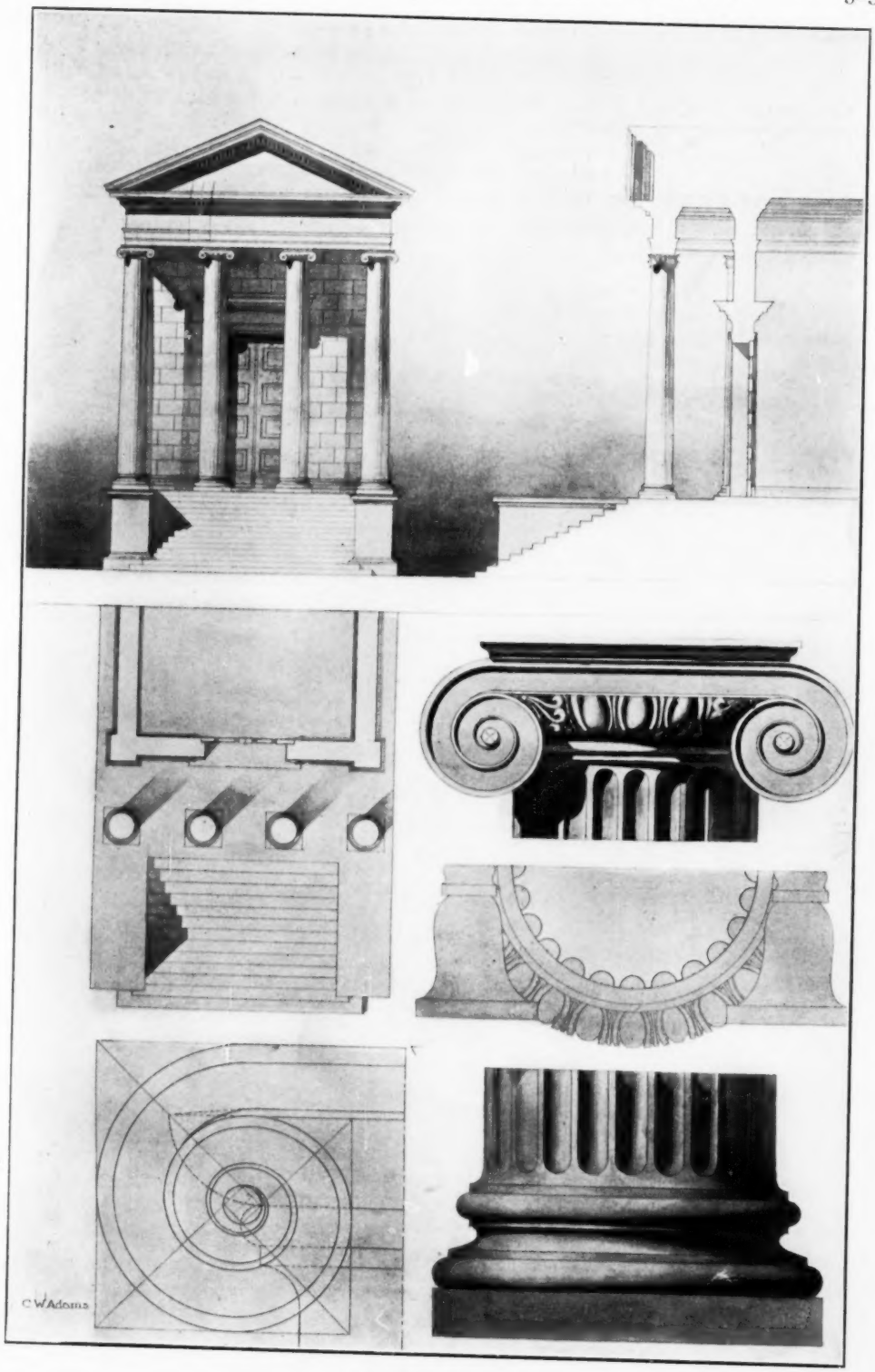


A STUDY OF WINDOWS.
(Applied Elements: First Year.)

of feeling, inspiration and taste, and that feeling, inspiration and taste cannot be communicated by text books nor by lectures, nor acquired by means of mathematical formulæ or scientific deductions, the teaching of design is one of the most delicate and difficult of all educational problems. The architect is not merely an artist, dealing with lines, forms and colors under the sole dictation of his imagination and handling absolutely free and plastic materials at every point as he will. He is also a scientific builder; he deals with rigid materials which must be handled according to the laws of statics, and with practical requirements of convenience and salubrity, which it is his first duty to meet in the most perfect manner. Although the artistic design of his building is, in one sense, the most important and the crowning phase of his whole work, his earliest attention must be given to utilitarian and practical considerations. This is why there have been so many systems devised or attempted for the teaching of design and so many different opinions held as to the relative importance of different studies in the architectural curriculum. Some would make design—that is to say, the actual working out of plans and elevations on paper—the chief part of the course in such a way as to subordinate to it all the practical and technical studies, relegating the mastery of these branches to the architect's office rather than to the class room. Others, on the other hand, would lay the chief emphasis upon the technical and theoretical studies (including the history of architecture and the styles of ornament), giving these the chief importance in the curriculum, as the solid foundation of knowledge and culture upon which the designer must build up his handling of materials and forms. They would leave the acquisition of skill in design to be obtained through the experience of actual practice, believing that the knowledge and good sense resulting from a thorough course of technical study will suffice to direct his subsequent efforts in design. The majority, however, of the schools of architecture, both in this country and abroad, have adopted the principle of carrying the two divisions of the stu-



ENTRANCE, SCHOOL OF MINES BUILDING.
Columbia University, New York.
(Architectural Drawing: Measured Work, First Year.)

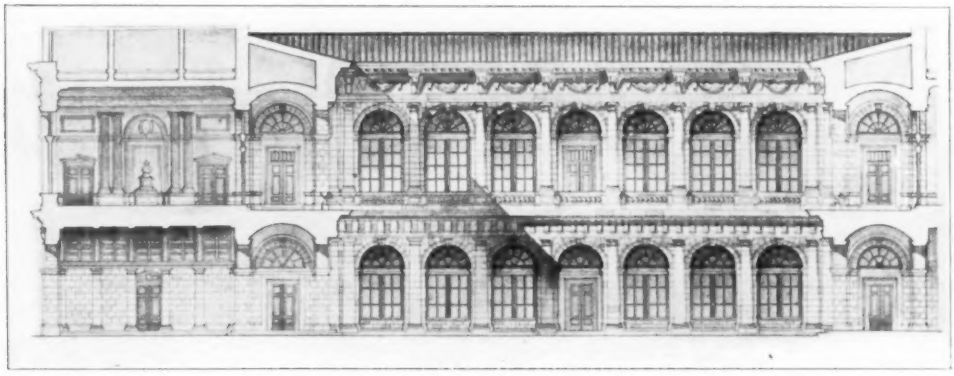


AN IONIC PORCH.
(Applied Elements: First Year.)

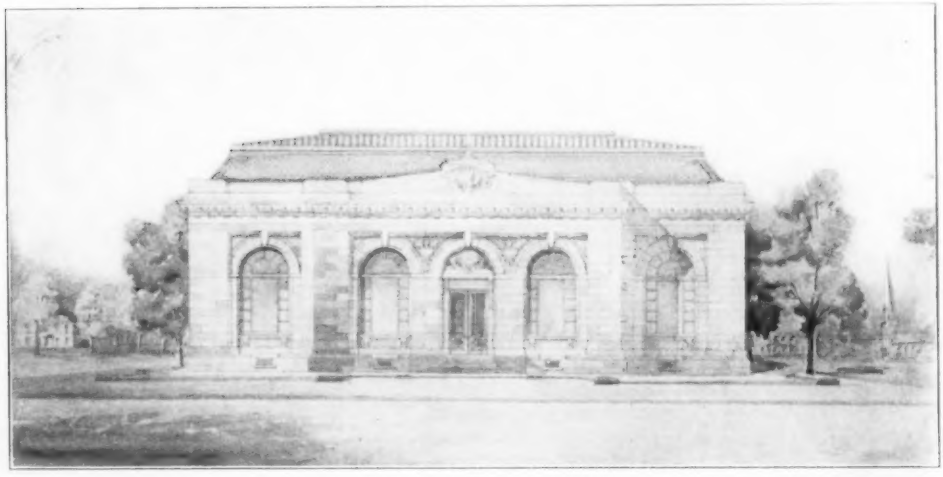
dent's work along in parallel courses, so that from the beginning he may be continuously engaged in exercises in artistic design while carrying on his studies in the class room in the more technical and theoretical branches of the course. By this means he is constantly reminded that neither part of the work is independent of the other, and that by thus alternating between the artistic and the practical he is being trained for the similar constant alternation between, and parallelism of, the two kinds of work in his actual practice.

Leaving aside, however, the discussion of the relations of time and importance between the specific work in design and the scientific and theoretical work of the class room, we find in the administration even of the actual work in design the greatest possible variety of methods and ideas.

This variety exists in spite of the fact that all our schools have practically settled down to the general procedure long ago instituted by the department of architecture of the School of Fine Arts in Paris: the system, that is, of dictated programs for specific problems to be worked out in competition by all the students of a given class, and to be judged and criticised by the instructor or by an



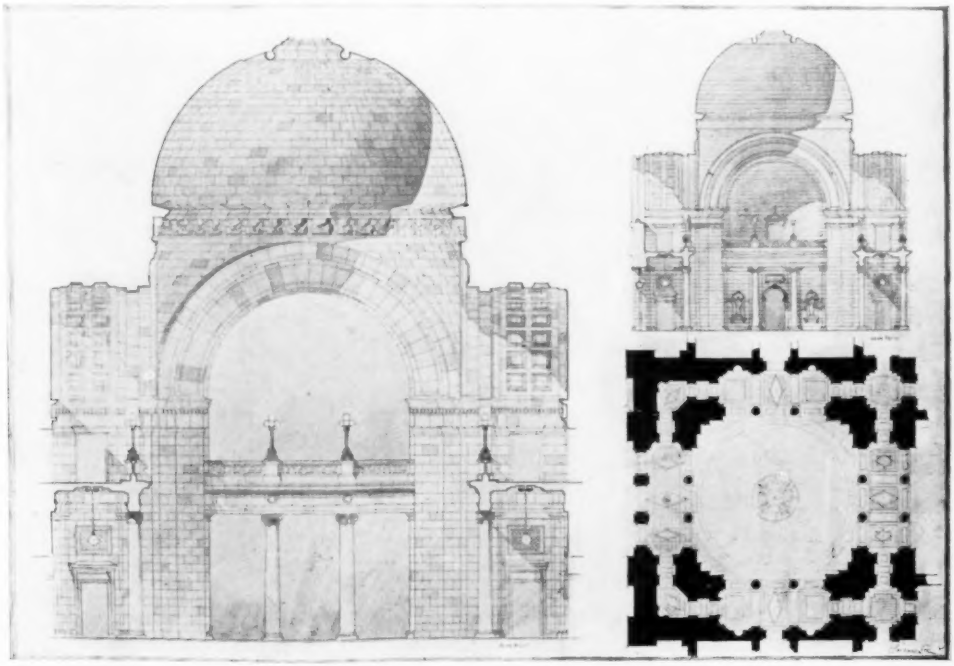
A COURT ARCADE.
(Elementary Design.)



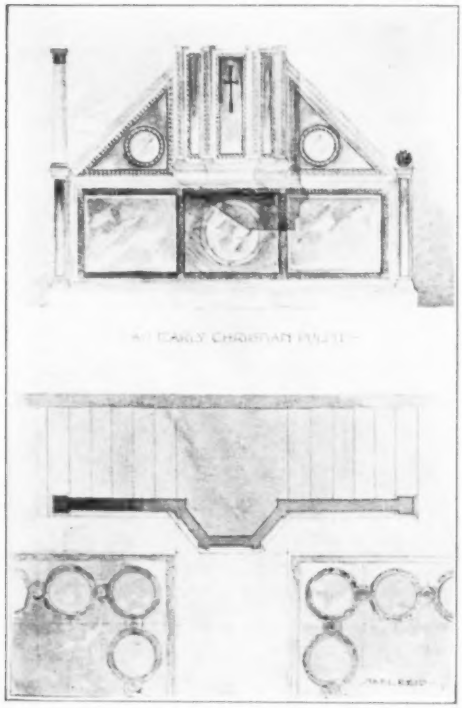
A SMALL POST OFFICE.
(Intermediate Design.)

official jury. This is, however, a mere skeleton of procedure and questions of the greatest variety present themselves in its administration. What shall be the subjects of the various problems in design? How shall they be related to each other? To what extent should they on the one hand resemble the particular problems which come up in ordinary practice, or on the other be of a purely theoretical and ideal character? In what manner should they be studied and presented? What importance should be given to draftsmanship, to the rendering of the design? What place should be given to problems of design in the various historic styles? How should the work be divided between elaborate problems, requiring several weeks for their solution, and sketch problems furnishing practice in rapid composition and delineation and lasting but a day or two? How large a proportion of the entire time allotted to design is it wise to devote to the study of architectural details? To what extent, if at all, should engineering calculations and the working out of strain sheets or of working drawings be introduced into or made to combine with the various problems? These are but a few of the almost innumerable questions that present themselves to those who must organize and direct the instruction in design.

One answer suggests itself at the very outset in reply to these multitudinous questions. "Art is long and life is short." It will never be possible to crowd into the longest period which the most patient student would be willing to devote to his studies even a tenth part of the desirable kinds of discipline in design. Different schools might each adopt an entirely different series and kind of problems representing different answers to the above questions, and each be exactly as good as the others. As a matter of fact, all the solutions adopted in the schools are compromises, and the difference between them is not therefore

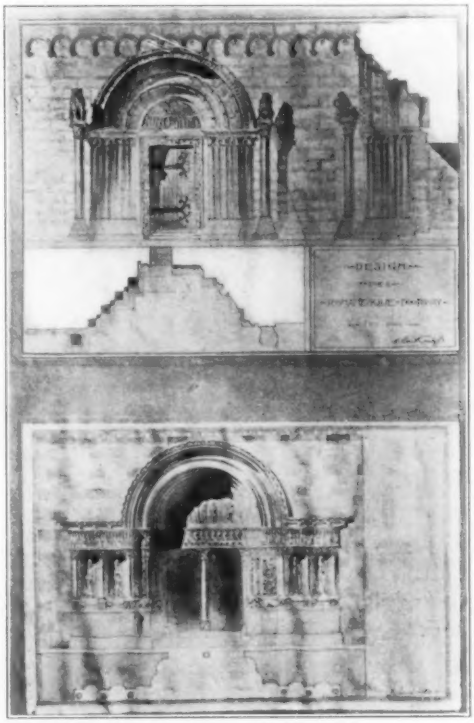


A ROTUNDA IN A PUBLIC LIBRARY.
(Advanced Design, First Problem, 1904.)



AN EARLY CHRISTIAN PULPIT.
(Studies in Mediaeval Styles.)

as great as one might at first expect. Perhaps the greatest difference among the American schools (among these I include, of course, the very extensive work done under the Society of Beaux-Arts Architects) will be found in the differing relative importance assigned to draftsmanship and presentation on the one hand, and to what might be called pure design—that is, to planning and composition, on the other. Next to this difference is that which distinguishes the schools which seek to give a somewhat practical turn to the training in design from those which treat it as a purely artistic exercise intended to develop the imagination and the artistic sense of form and proportion. No one of these schools claims to have solved the problem ideally. In all there is recognized the difficulty of determining whether it is best to graduate men trained for immediate usefulness in the architect's office, or, on the other hand, men who, knowing less on graduation than the former of the methods and devices of the office, are on the other hand, better trained intellectually, and by reason of broader culture may be expected to find themselves at the end of a few years far in advance artistically of those whose training was more immediately practical. There is, however, far less diversity of opinion on this point than was formerly the case. A substantial unanimity of sentiment has been developing in favor of the broader view, which looks beyond the earlier years of office-apprenticeship which every graduate must pass through, and plans for the highest development of his powers in his maturer work. The trade-school conception in the teaching of design is fast disappearing from our more important institutions. The elements of office-drafting are, however, taught in certain evening schools, as, for instance, in many Young Men's Christian Associations. Such schools serve to prepare

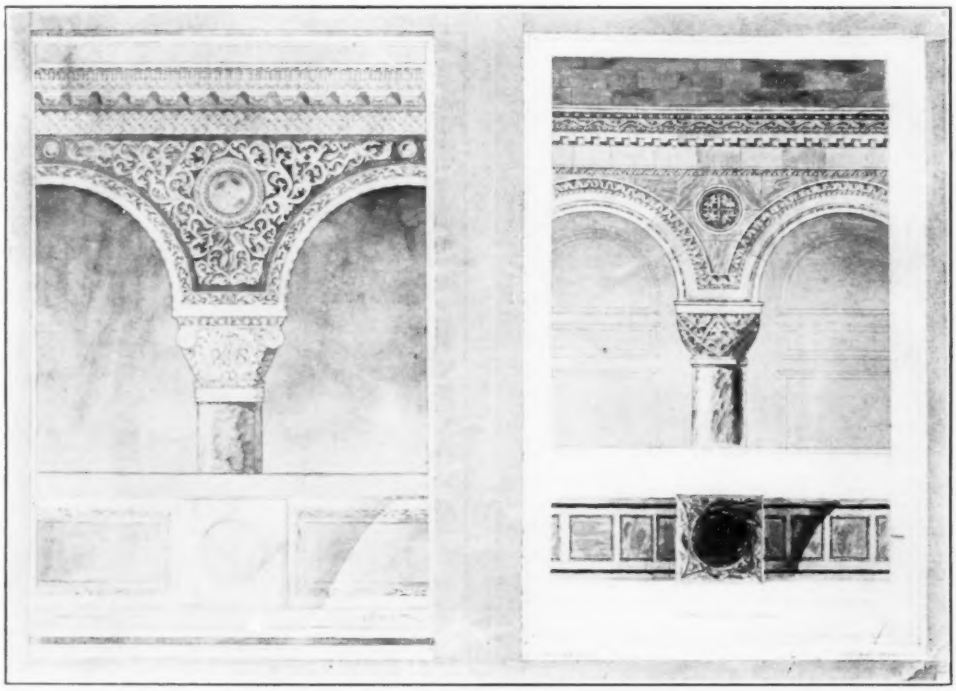


ROMANESQUE DOORWAYS.
(Studies in Mediaeval Styles.)

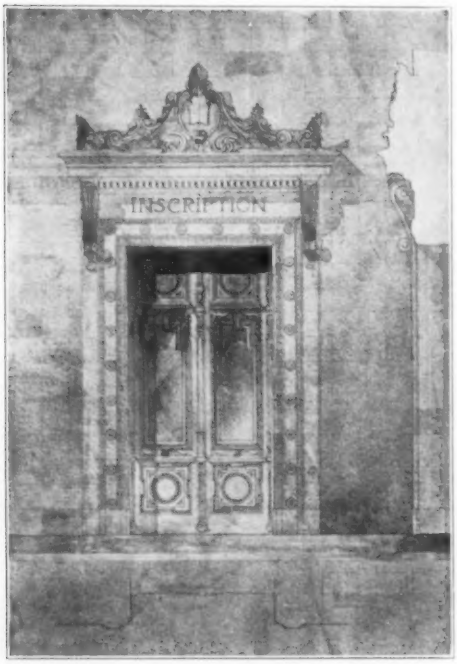
young men employed in the trades to understand architects' drawings, and to fit boys to enter the lowest grades of employment as draftsmen in the offices, but they are in no sense schools of architectural design.

There is, on the other hand, a widely prevalent notion among the younger draftsmen throughout the country that the only thing needed to complete their training in design is to work out design-problems. Failing to recognize that the art of design requires a solid foundation of knowledge, technical, historical and theoretical, with light heart and great enthusiasm they join existing *ateliers* or organize new ones, fancying that when they have acquired a certain number of "values" in the various grades they have accomplished their education. Not all who work in the *ateliers* are under this mistaken prepossession, but many of them are. Some of these learn their mistake in the course of a few years, and regret that they began their training in design at the wrong end. Some of them, indeed, finally enter the great schools as special students, or even as candidates for a degree. Not a few, however, discover the inadequacy of their training only to lament it, while others never discover it at all.

This does not mean that work on design-problems is, even for these men, wasted effort. The devotion, self-sacrifice and enthusiasm with which they pursue their purpose is wholly praiseworthy and beneficial, and they certainly gain much in resourcefulness, skill and taste in composition and delineation. They are likely, however, to get into a habit of overestimating mere cleverness, especially of rendering; they often mistake tricks and mannerisms for excellences, and fail to grasp any broad fundamental principles either of planning or composition. Much, of course, depends upon the master or teacher of the *atelier,*



BYZANTINE COLUMNS AND SPANDRELS.
(Studies in Mediaeval Styles.)

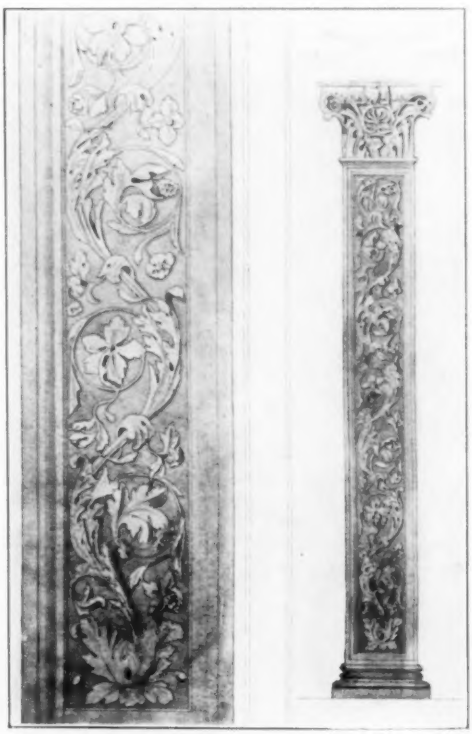


A MONUMENTAL DOOR AND DOORWAY.
(Advanced Design, Six-day Problem.)

and much on the juries who award the values; but there is always lacking the back-ground of a sound previous education. What is needed to supplement the work, excellent as far as it goes, of the *ateliers* of the Beaux-Arts Society and similar institutions, is a system of courses in mathematics, construction, history and theory of architecture, under the same institutions or under the direction of the great schools, so conducted as to be available for draftsmen after office-hours. How far the draftsmen would respond to such opportunities depends upon how far they feel the need of such training. Columbia University has for three years offered a course in architectural history, running through two years, at the end of one afternoon per week for thirty weeks of each year; thus far, perhaps, because the hour is inconvenient, but six draftsmen have attended it. But the University is taking steps towards the organization of evening classes for draftsmen, and another year may see these in operation and well attended.

II.

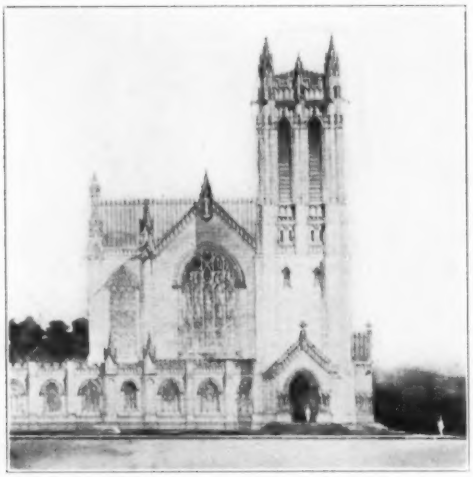
Design, in architecture, is a form of expression. It is a language, of which the words and letters are the structural and decorative features and details; the thoughts to be expressed are the ideas and conceptions in the designer's mind. These conceptions are in part suggested by the conditions of the problem; for the rest they must spring from the accumulated store of impressions previously received into the mind, recast and recombined by the imagination. There can be no creative imagination without materials to work upon; these materials must be acquired in some way, and to impart these is one of the objects of an architectural education. The study of architectural history, of photographs and books, and of the monuments of the arts themselves, both at home and abroad, is the chief means to this end. The function of the problems in design is to stim-



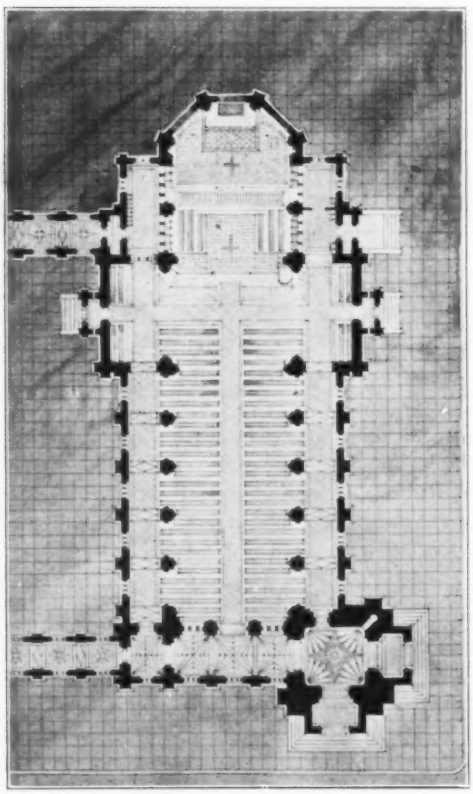
AN ARABESQUE PILASTER.
(Studies in Renaissance Styles.)

ulate the imagination to a creative use of these materials as distinguished from mere repetition and imitation. The student must then be taught to give expression to the new conceptions of the imagination: to externalize them, as the French say. But in order to express these he must have suitable means of expression. He cannot invent these out of hand any more than he can invent a new language or a new alphabet. Even if he could, the new language or alphabet could never serve his purpose as the old ones can, not only because no one but he could understand it, but also because it takes long periods to perfect a language as a means of expression; centuries in the case of a spoken language, decades at least, and sometimes centuries in the case of the languages and alphabets of architecture. The historic styles are the perfected languages of architectural expression, the forms and details of these styles its words and letters. To master one such style thoroughly, so that the designer can think his architectural thoughts out freely in terms of that style, is a valuable achievement. The orders of classic architecture provide a language and an alphabet that have been wrought out to the utmost degree of perfection and flexibility by long centuries of accumulating experience. This is why they have been adopted in nearly all schools as the first step in the course in design; not that the designer may ever after work with them alone, but that he may be provided at the outset with a means of expression already elaborated almost to a finality, and withal, like the Roman alphabet, clearer and simpler than any other that the world has seen. When the designer has developed measurably by this means his powers of architectural thought and expression he begins to be in a position to appreciate other forms or styles and to profit by them. The study of styles through the medium of architectural history is a step towards the enlargement of his resources of expression, but it is a question how far, during his academic schooling in design, it is desirable for the student to practice the use of these styles. To many instructors this period of schooling appears too short to permit of extended essays along new paths. It seems, indeed, inadequate even for a really thorough discipline in the use of the more familiar forms. The question brings up the old controversy between intensive and diffusive educational programs. In most of our schools a concession is made to the demand for variety of experience and the broadening of the taste, by providing in the more advanced stages of the work in design a limited number of problems calling for or permitting the use of the various historic styles, as in a Gothic church, a Moorish casino or restaurant, or a Greek tomb or crematory. But the fundamentals of design are independent of the historic styles: proportion, massing, fenestration, distribution of light and shade, scale, expression—these so far as the exterior is concerned, and planning as the foundation of all design. Decoration and the details of design are secondary to these essentials, but they are important. They should enter into any scheme of instruction in design, but in what precise proportion it is hard to say. They may be taught by means of special problems in the regular schedule of the design-course, or by means of parallel collateral courses of instruction. In Paris there are special prize competitions in decorative design, like the Rougevin, supplementing the regular design problems. In some schools, as at Columbia, much is made of special courses in historic ornament, with accompanying exercises in decorative architectural design in the various styles treated of in the class room.

But since architectural design is not a matter merely of abstract composition in form and color, but of the creation of buildings which must be put together on scientific principles, the teaching of design must in some way be related to the teaching of scientific construction. This raises the question as to how this relation shall be recognized. The student might be required to prepare structural details or working drawings of parts of each design-problem given out, but this would consume more time than can be generally allowed for these problems.



AN EPISCOPAL CHURCH: ELEVATION.
(Advanced Design.)

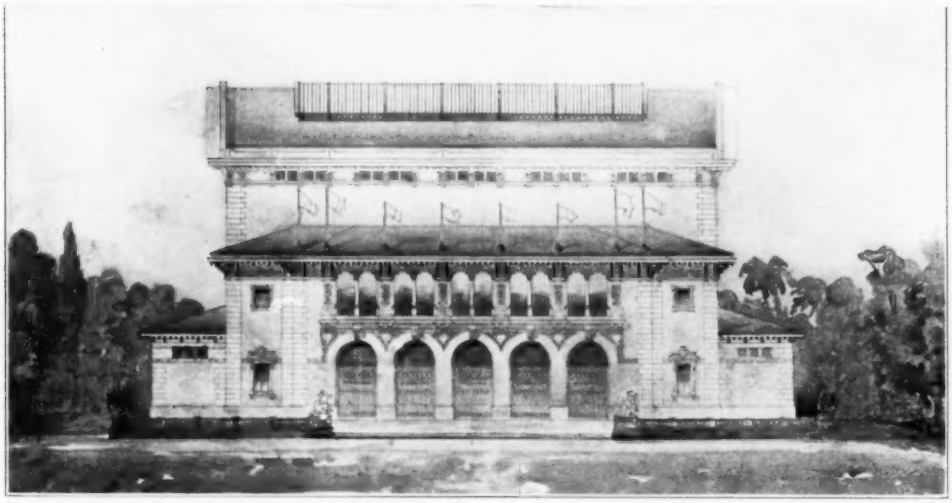


AN EPISCOPAL CHURCH: PLAN.
(Advanced Design.)

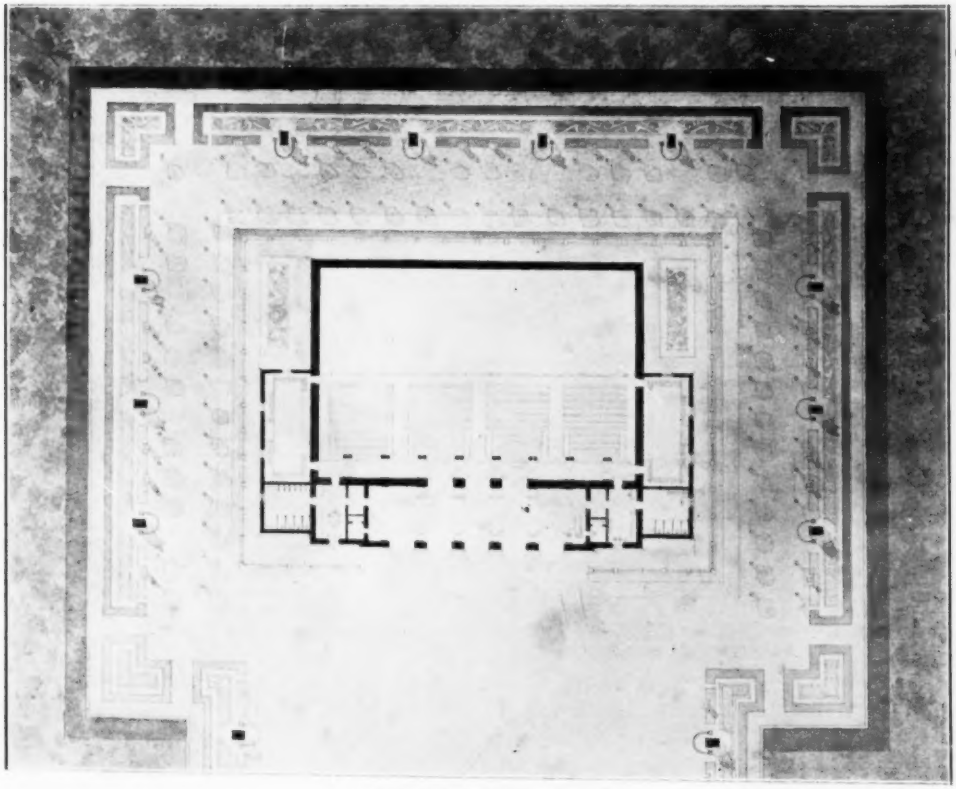
The more usual course is to make scientific construction a separate but parallel course of study such as will enable the student to design instinctively, as it were, in terms of construction; in other words, to make all his school designs "constructible." This, however, is an incomplete solution of the question, and in some schools—perhaps in most—the ordinary problems are supplemented by a certain number of problems involving structural design, the preparation of working drawings and strain-sheets, and the making of the requisite engineering calculations. The Paris school prescribes as one prerequisite for its diploma the working out of the entire structural design and details of the final or thesis problem, and this might well be done in all our American schools.

Whether a large number of short problems or a smaller number of long and elaborate problems affords the best training is a debatable question. In the one case the student acquires a more varied discipline, in the other the study of each problem is carried further and is more thorough. It is again the question of broad *versus* intensive discipline. In most of our schools the longer problems are alternated with one-day sketch-problems, thus following, as in so many other things, the lead of the Paris Ecole. This practice has the sanction of generations of use, but it is still open to question whether a greater variety of exercises in design by means of a larger number of shorter problems than is now customary might not be found to be, after all, more beneficial in the long run.

More, however, depends on the teacher than on the system. The important thing is that the teachers and juries shall insist always upon the fundamentals of design rather than its superficial aspects; upon good taste, good proportion, sensible and artistic planning, refinement and beauty of effect, clean, straightforward draftsmanship, rather than upon showy details and tricks of brilliant rendering which distract attention from the fundamental design. It is upon the master that the pupils' advance in taste depends; good taste is not communicated by lectures, but gradually



A PELOTE COURT: ELEVATION.
(Advanced Design.)



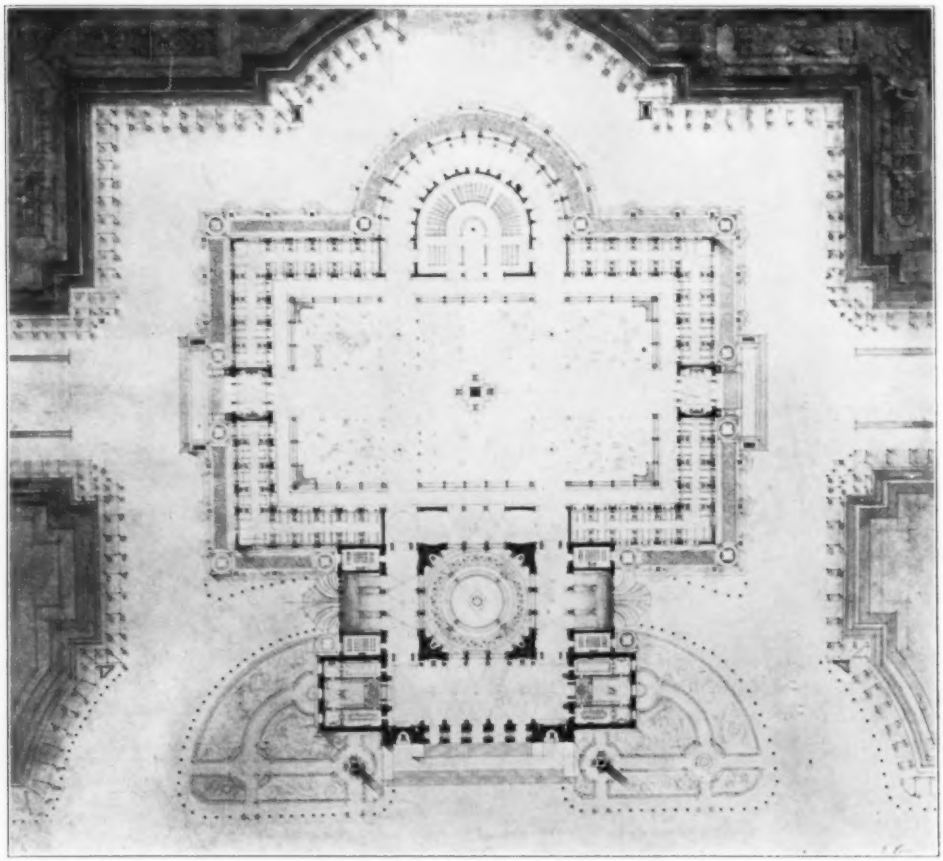
A PELOTE COURT: PLAN.
(Advanced Design.)

acquired through constant contact with masterpieces of art, and with personalities themselves filled with a communicable and infectious enthusiasm for the good, the true and the beautiful in the art they teach.

III.

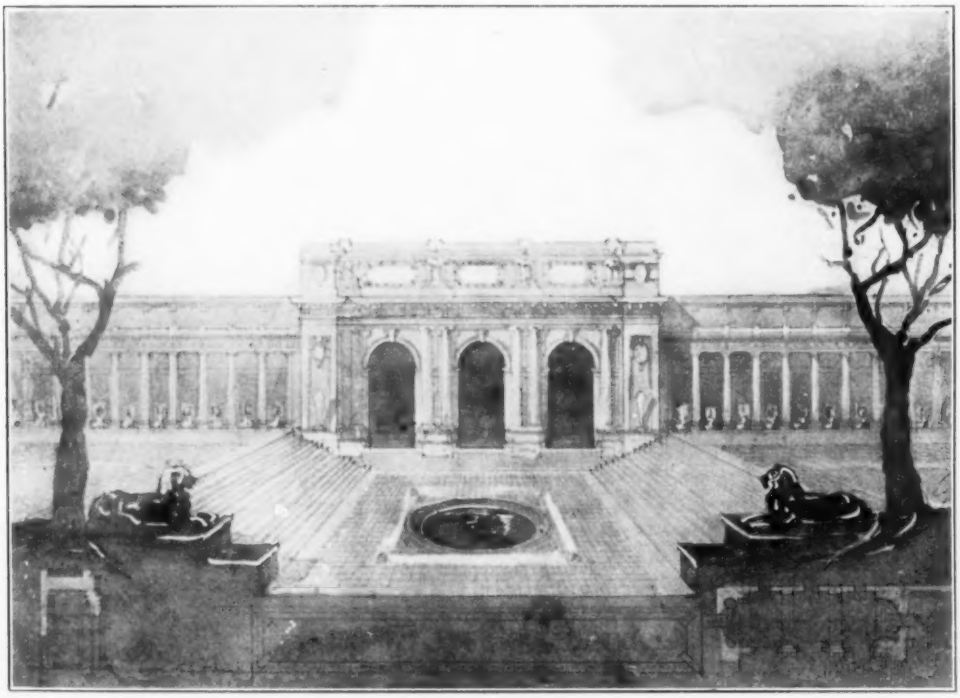
The foregoing paragraphs represent in general the ideas which prevail in our best schools, and which have for the most part received emphatic endorsement in the report of the Committee on Education of the American Institute of Architects, prepared for the recent convention by its chairman, Mr. R. A. Cram. As representing one effort to embody these ideals—by no means yet with entire success, but with a consistent reaching out towards their realization—the methods employed in the school of architecture of Columbia University may have a certain interest.

In this school the work in design really begins for the majority of the students entering the school as novices in the middle of the first year of professional study. The first half of that year must, of necessity, under present conditions, be occupied with very elementary subjects. The students learn their orders and how to cast their shadows, how to lay washes, how to render backgrounds and foregrounds, how to handle the T-square and triangle, pencil and brush. They must learn the alphabet before they can begin to spell. By the



A NATURAL HISTORY MUSEUM: PLAN.
(Graduate Design: Columbia Fellowship Competition.)

middle of the first year they are ready to undertake small and simple problems in the use of the orders and the more familiar classic forms of doors, windows, pediments, balustrades, etc.; they are learning to spell with the one practical architectural alphabet which they have mastered.* By the end of the first year they are sufficiently familiar with the manipulations of architectural drawing and with the commoner applications of the orders and elements of architecture to be admitted to the problems entitled "Elementary Design." In these, the subjects are simple buildings, in some cases making use of prescribed orders, in other cases permitting of a freer range, and furnishing problems to each of which the afternoons of three or four weeks may be devoted. The student acquires his first discipline in the artistic considerations which distinguish a good plan from a bad one, a well composed façade or section from a poor one. Presentation counts for a great deal in these little problems, because the young designer must be made to acquire absolute mastery of his means of expression in order that in later and more important problems he may instinctively and without effort express his design in the most advantageous manner. When the student has acquired the prescribed number of "points" in design in this class, he is entitled to take those of the next higher division called "Intermediate Design." The problems in this class are fewer in number and more elaborate than the elementary problems, and introduce more varied considerations of planning, composition and surroundings. They include such buildings as a post office, a public



A PROPYLAEA AND COLONNADE.
(Advanced Design, Ten-hour Sketch.)

*These elementary attainments are to be hereafter insisted upon as requirements for admission to the school, so that the student will then begin his work in design at the very outset of his school career, and a larger number of points in design will be required for graduation.

library, a crematory, etc.; buildings of a somewhat complex character but not yet of great monumental importance. The problems in this class require from four to six weeks for their elaboration, and the juries in their awards place emphasis upon fundamental qualities of planning and composition, while they penalize slovenly and negligent presentation by exclusion from any awards. It is not the presentation but the real design of the problem which determines the merit of the different solutions. In this class the student is required to win a larger number of "points" than in the Elementary class. There is no prescribed length of time in which these "points" may or must be acquired, so that each student is advanced from one class to the other solely according to his own skill and advancement as shown by his work. Some pass through both classes in a single year, others take two or more entire years to accomplish the same result, and others do it in varying periods between these extremes.

The highest class of problems given to undergraduates in the school is termed "Advanced Design." The students who take this work are, for the most part, such as have completed all or nearly all of the prescribed lecture courses and class room work and are therefore free to devote their entire time to these exercises. The subjects of the problems are of a monumental character and extremely varied in kind. Variety of experience is a desirable acquisition for the young student, so that while concentration marks the work of the earlier classes, the purpose of the advanced problems is to give the student the widest possible range of experience. Churches and synagogues, technical schools and like problems, involving the grouping of many buildings, state capitols and town halls, presenting the problem of a single monumental exterior and complex planning; railroad stations, armories, hospitals and school buildings, furnishing practice in the meeting of highly specialized and practical requirements; a frontier custom house and lighthouse of picturesque character; decorative problems such as a monumental ceiling or a memorial arch, and problems involving a certain amount of landscape architecture—such is the varied scope of the problems in this class. It is interesting to note the effect of this training upon the student as it shows itself in the final thesis design which must be submitted before graduation. The fuller grasp of the conditions dominating a problem, the increased sense of monumental fitness and artistic propriety, the gain in resourcefulness and flexibility of design, the greater ease and readiness with which the details are handled; these things measure the efficiency of all the training that has gone before. The programs of the problems in advanced design are purposely so framed as to require for the most part drawings of large dimensions involving bold delineation and breadth of handling. The student must learn to see things in a large way if he would handle them broadly. Little bits of drawings, however valuable in certain stages of his training, will never enable the student to work in a large-handed and masterly fashion. The buildings he is to erect are large objects, and largeness of scale and breadth of handling are not promoted by the study of either plan or elevation solely to the 1-16″ scale.

Alternating with these various "problems" (as they are technically called in the school) there are given out in each of the three grades a series of sketch-problems or "sketches," each to be executed entirely within ten or twelve consecutive hours, as exercises in rapid invention and delineation. The subjects of these sketches are usually small structures like rustic gateways, water-towers, band pavilions or the like, or else (especially for advanced students) compositions of a decorative character, such as a fire-place, a public clock, a ceiling, a tomb or an episcopal throne. The dominant considerations in judging these sketches are: first, a good and reasonably artistic scheme or fundamental conception, and secondly, a simple and effective presentation—clear, forcible and workmanlike drawing, with a touch at least of imagination and feeling in the delineation and coloring. The standard is purposely kept high, and very few of

the sketches are awarded even the coveted "pass," which counts for one point on the student's record, while a "mention," counting two points, is still more rarely accorded.

Of a still higher grade are the graduate problems given to post-graduate students, some of them candidates for the higher degrees. Four such problems occupy the academic year, forming a continuation of the discipline of the advanced design. These problems may be taken by graduates of the school resident abroad, doing the work in the Paris *ateliers*, or as special student-guests of the American Academy at Rome, the programs being sent to them from Columbia University. The most important of the post-graduate problems are those given out as the competitions for the resident or the traveling scholarships—one of each kind every year.

Supplementing all these problems in design are the special problems given out as a part of the work in the courses in the history of ornament, in architectural history, and in construction and office-practice. A Byzantine column and spandrel, a Romanesque doorway, a Gothic window or tomb, a Renaissance pilaster or entablature, a Renaissance ceiling, a Louis XV. mantel and wall-treatment, as exercises in decorative style; a chapter-house or a bay or west front of a Gothic church for practice in the mediaeval styles; a country house in wood and a city house, with the drawings worked out, figured and calculated as for the contractor's estimates—these or like problems serve to remind the student that architectural design is a practical art as well as a useful art, and that styles are studied not as mere curiosities, but as languages which can be used.

A paragraph may be devoted to the machinery of the instruction and its working. The school maintains three drafting-rooms, two of these on down-town streets, under the general care of two distinguished architects with the rank of professors in the University—Mr. McKim and Mr. Hastings—each represented and assisted in the actual work of instruction by younger practitioners specially qualified for such work; and a larger drafting room at the University under two instructors, both likewise practicing architects. These six gentlemen form a Committee on Design, meeting from time to time to prepare the programs for sketches and problems, to discuss the general interests of the work and to select the jurors who, with one instructor from each drafting room and the executive head of the school, pass upon the various designs submitted. The dates for handing in each problem are scheduled and the drawings rejected unless handed in by the specified dates. They are mounted on stretchers and hung on the walls in the "model-house" near Havemeyer Hall on the University grounds, and there examined and judged by the jury on an appointed day. The awards consist, for the "problems," of "passes," counting three points, "mentions," counting four points, and "special mentions," given only for exceptional excellence, counting five points. The standard of the work depends very largely on these juries, which unite in their membership the academic element and that of the "outside" general practitioner. The partly changing membership of the jury makes it impossible for the work to fall into narrow ruts, or for students to win points by sacrificing fundamental qualities in their work to particular "stunts" or tricks supposed to be in special favor with the jury, for they never know who is to be on the jury. It likewise renders impossible the domination of the jury, month after month, by one person or one element, and thus two of the objections alleged against the jury system as organized in the great Ecole at Paris are effectively removed. No medals or prizes are offered; the awards are honors having a purely scholastic value, and as their number is not restricted and they are given for absolute and not merely relative merit, they become emulative rather than competitive distinctions, and any one or any number may win them, whereas a medal or prize can only be won by one man to the exclusion of all the rest, no matter how good their work. The two annual fellowships, one for resident and one for foreign study,

are awarded as prizes, it is true, but not to students in the school. They are open only to graduates, and the competitions are established to determine the holders of the fellowships instead of the fellowships being offered to stimulate interest in the problems of the competitions.

IV.

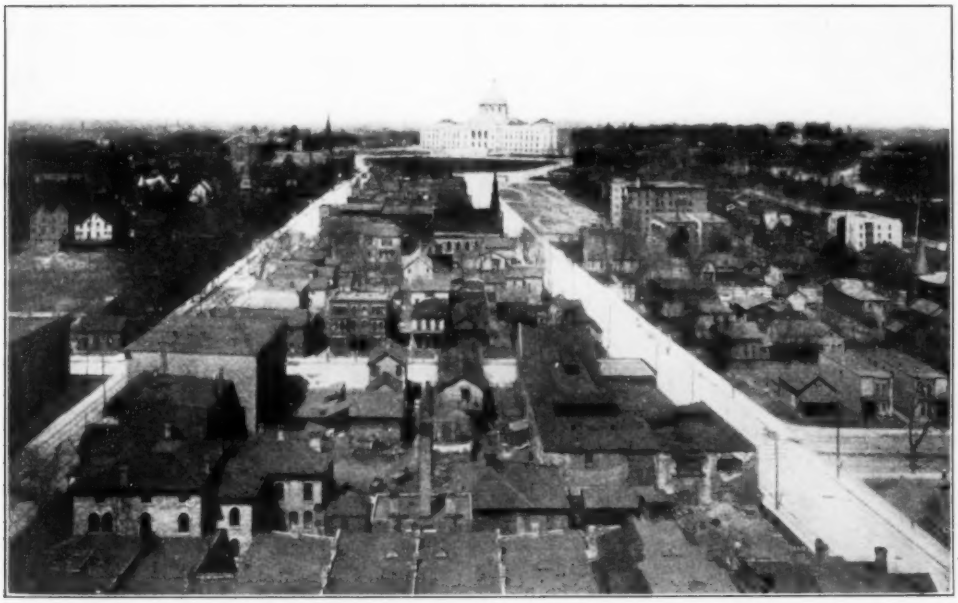
All this is, however, the mere machinery of the teaching of design. The results depend upon the judgment, taste and enthusiasm of the men who administer the teaching and on the industry, imagination and enthusiasm of the students who work under them. At Columbia the six professors and instructors having charge of the design give only a part of their time to the work of the *atelier*. They are all practicing architects, not academic pedagogues. This has both its advantages and its disadvantages; the interest of the instructor is divided, but on the other hand he does not settle into narrow academic ruts, and brings always to his work the spirit and the experience of the active profession. The results have vindicated the system, but as in all else, less because of the system itself than because of the interest, devotion and enthusiasm of the instructors. As for the students, some do good work and some poor work, but the system of "points" puts a premium upon quality and penalizes inferior work, so that the incapable and the lazy very soon drop out of the race. The man who finally wins his certificate or his diploma goes forth into the new life of active practice in the office with a professional equipment of training and discipline which compares favorably with that of any other profession, and the value of which he realizes more and more thoroughly as the years go by.

The cost of such an education at Columbia University is less than at most technical schools in the United States, the fees charged amounting to scarcely 50 per cent. of the actual expense to the university of providing the instruction. A student who pursues the entire course for the degree or certificate, if he spends four years in doing it, pays altogether about $860 in fees. If by hard work and brilliant performance he can accomplish the same in three years, it will cost him less than $700. This covers all the drawing, design, mathematics, history, theory and research, and includes the special fees for registration, gymnasium and graduation. But the university is also very hospitable to draftsmen who cannot afford either the time or the money for such a course, admitting them as "special" or "non-matriculated" students, to take whatever course or combination of courses they wish to pursue. All students who take only a part of the work pay accordingly; so that a non-matriculated student can, for example, take elementary or intermediate design and drawing at a cost of only $45 per year; while for the class-room courses the charge per half-year is $7.50 for each hour per week of lectures or class-room work. Thus every student may regulate his work according to his purse. It is perfectly possible for a draftsman who can arrange to command two or three hours two or three days per week, besides his evenings, to complete the entire course for the certificate in six or seven years, with a splendid gymnasium and an incomparable library (the Avery Architectural Library) at his command at all times.

A. D. F. Hamlin.

Ambitions of Three Cities

Three of the most handsomely published and elaborate Reports on City Beautification that have yet been printed appeared almost simultaneously, in the month of February, from three far separated cities. The cities were St. Paul, whence came the Report of the Capitol Approaches Commission; St. Louis, whence came the "Reports of the several committees appointed by the executive board of the Civic League to draft a city plan"; and Boston, from which was issued, with the financial cooperation of seven other organizations, the Report of the Committee on Municipal Improvements of the Boston Society of Architects.



FROM THE OLD TO THE NEW CAPITOL IN ST. PAUL, MINNESOTA. THE SITE OF THE PROPOSED CEDAR STREET MALL.

Though in a general way the reports deal with a single subject locally applied, it is well to note their distinctions. Their geographical distribution—from the extreme East, the great Northwest, and the great Southwest, is significant. The distinct source that was the origin of each may also be observed: in Boston the Report was made by a society of professional men, conscious of the civic responsibility imposed by their special knowledge and cultivated ideals; in St. Paul it came from a commission owing its existence and drawing its inspiration, as well as its expectation of popular support, from the enthusiasm aroused by the beauty of the new Capitol; in St. Louis it was prepared by civic improvement enthusiasts, there banded into a large and influential society that is ably conducted. The manner of presenting the reports was of not less interesting variation. St. Paul presented the matter as an official report to the city council from a regularly appointed commission; St. Louis presented it with a hurrah, at a big City Plan Dinner, where the handsome report was distributed as a souvenir; Boston issued it at the joint

expense, significantly, of these organizations: The Society of Architects, the Chamber of Commerce, the Real Estate Exchange, the Metropolitan Improvement League, the Stock Exchange, the Merchants' Association, the Board of Fire Underwriters, and the Master Builders' Association. But in the conservative old Eastern city the report bore on the title page the statement:

> The suggestions offered herein are not endorsed, approved or urged by the Boston Society of Architects, or by any of the other organizations who have joined in the expense of publishing this pamphlet. It is printed as an interesting study of subjects of public concern and in the hope that it may lead to fuller investigation by competent authorities into the subject of the municipal development of Boston.

The differences that characterize the reports as a whole suggest, in a general way, the complete independence of each other with which they were prepared; their individuality—which is a quality that reports on city beautifying must always have, to be worth anything locally; and that each is *sui generis*, and therefore fitted to its environment. These are important considerations that emphasize, rather than detract from, the underlying, striking, fact of the general unity of subject of these three reports, simultaneously issued from widely separated cities—each a magnificent ambition, felt with a strength and confidence that did not hesitate at costly presentation.

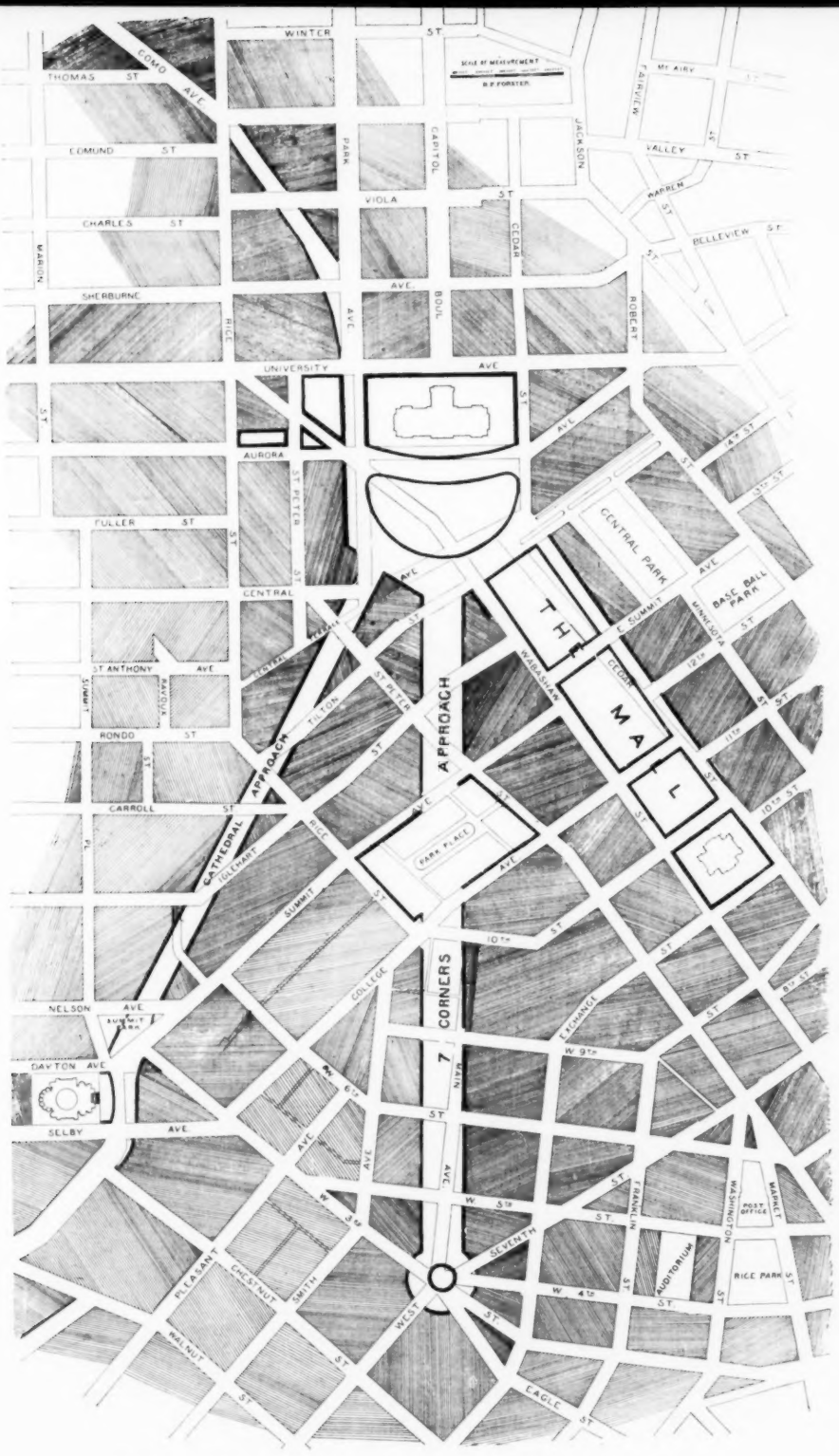
Let us examine them more specifically.

In pursuance of a resolution of the Common Council of St. Paul, approved Feb. 9, 1906, a committee of five was appointed to report a plan of suitable approaches to the new Capitol, to estimate the cost of the approaches it would advocate, and to recommend such legislation as in its opinion might be necessary for the acquisition of the property needed. The commissioners were Louis Betz, Cass Gilbert (the architect of the Capitol), Pierce Butler, Oscar Claussen and George M. Tibbs. Mr. Betz was made chairman. It may be said in preface that previous to this time Mr. Gilbert had called attention to the inadequacy of the Capitol's present approaches, and had suggested some of the handsome effects that could be secured by a realignment of streets, and that there was a pretty general wish to obtain a correction and proper rounding out of the site itself, and a good deal of interest in the more ambitious suggestion. It was, indeed, as a result of this interest and wish that the commission was appointed.

Thus there lay before the committee a specific problem, demanding a solution that must be in itself comparatively limited, however far-reaching the results. But because the results were far-reaching and the commissioners intensely in earnest, the commission took the ground that it was reporting not only to the Common Council, which had "already shown its sympathy with and interest in the project," but through the Council was addressing "the Legislature and the people of the city and the State." Hence it is that the report is in form of an argument and appeal, that it is so sumptuously published, and is adorned not only with drawings, maps and photographs, immediately germane to the project, but with views of what is good in city building in all parts of the world.

The project itself consists of four main features. First, the rounding out of the Capitol grounds, to provide a symmetrical plaza before the building. To accomplish this two schools will have to be relocated, and the line of a street with important car traffic somewhat altered. These things can be done without difficulty. The other main features are a central and two diagonal approaches, one of the latter terminating in the new cathedral and the other in the old Capitol.

The central approach lies directly before the building on the north and south axis, extended, of the dome. Midway in its extent it crosses Park Place. Its terminus, 3,800 feet from the front façade of the Capitol, is the Seven Corners, a "rond point," at which seven streets converge. It is planned to make this approach an avenue at least 180 feet



MAP OF PROPOSED CAPITOL APPROACHES, ST. PAUL, MINN.

This map shows the present city plan. The territory inside of the heavy line indicates approaches and parkways to be acquired.

in width—the dome on its center line—bordered with broad walks, side lawns and trees. It will open a view of the Capitol from the business district, will be an immense convenience to traffic—which can now approach the Capitol from this direction only by a long detour or a zigzag journey—and it passes through property that is poorly improved and cheap.

Of the proposed diagonal approaches the more ambitious is the Mall, which would extend a distance of 1,500 feet from the Capitol grounds. It is proposed to make it 300 feet wide, exclusive of Wabashaw Street, which it would skirt; it would be the main approach from the retail and hotel district, and would be passed by every traveler in the trolley between St. Paul and Minneapolis. The ideal which the commissioners have in mind for its development is apparently based on that of the Paseo in Kansas City; but they wisely confine themselves to their assigned task, presenting no detailed plan of improvement, content with the picture of the quarter mile and more of broad greensward and the broad and sweeping view that would be offered of the Capitol. Along this Mall, at some future time, the commission hopes other public buildings would be grouped, and it is pointed out that there would be presented here the opportunity to gain the end for which Cleveland is now spending millions and for which St. Louis expects to strive. On this tract also there is now little costly improvement.

The Summit Avenue approach, which would join the Capitol and the new cathedral, opening a splendid vista from each to the other, would extend 3,200 feet and be 100 feet wide. In its directness it would be a great convenience not only to citizens but to sightseers, and it would form a link where now one is much needed in the belt of parkways.

The three approaches together would cost, it is estimated, $1,970,388, at a generous calculation, and it is proposed that the city of St. Paul shall pay the whole of this cost of the land and that the State shall provide the development —"to give to the Capitol building such a setting as its exquisite lines and proportions demand." The commission prints a somewhat elaborate calculation to show that the tax yield from the increased values due to the improvement would very easily take care of the interest and sinking fund charges. It believes that "extensive advertising of the kind that Minnesota most needs, advertisement of its enterprise and foresight, of its culture and the development of its public spirit, would be the first result," and that a second would be multitudes of visitors. It urges immediate action, on the ground of economy; and it closes its strong report by an account of what is being done in other cities for similar projects of development. "It is a movement," it declares, "which is as much in the air today as the movement for parks was in the air ten or fifteen years ago. The park system is now recognized as a necessity. The interior boulevard, the Mall, and the grouping of public buildings will also be a recognized necessity a dozen years hence."

The problem covered by the report from St. Louis is far more complex than that discussed in St. Paul. Some forty-two citizens, representative of almost every profession and interest, were members of the several committees which, with indefatigable interest and industry, united in drafting the report. Its scope includes the whole city, and though it be fancied as failing totally of future result, it would always be a monument to present civic spirit. Happily, however, it is not likely thus to fail of effect.

In November, 1905, the Executive Board of the Civic League appointed a small committee to consider the feasibility and scope of a comprehensive city plan. This committee outlined the points which it thought should be considered and recommended the appointment of five local committees to prepare tentative reports, covering the various parts of the plan, and of a general local committee to co-ordinate the recommendations of these five committees and to incorporate them into a final comprehensive report. The report which is issued is the latter. It is presented "at this particular time with the hope that it will

A CITY PLAN FOR ST. LOUIS, PREPARED BY THE CIVIC LEAGUE OF ST. LOUIS.

furnish suggestions for the public improvements contemplated in the recent $11,200,000 bond issue"; but in its entirety it looks far into the future, and, involving an expenditure of more than $25,000,000, furnishes the city with a plan to grow toward and develop to in the coming years.

Following a brief introduction, there is printed, as a "statement of the general committee," a chapter on The Need of a City Plan for St. Louis. In this the familiar arguments are rehearsed, the examples of other cities are cited, it is stated that in the preparation of the report there has been "kept constantly in view the practical and the attainable," and that as a result of the previous lack of plan and insufficient regulation there has existed a "riot of conflicting and selfish interests" before which the citizens were helpless. The next chapter is an illustrated historical sketch of the physical growth of St. Louis. In its considerable length this offers an exceedingly interesting study of the undirected development of a city from its village days.

Following that comes the first division of the report proper. It considers the Public Buildings Group, and is a reprint, with "hearty endorsement," of that report of the Public Buildings Commission issued some three years ago, and which has been duly described in The Architectural Record.

With the succeeding chapter, on Civic Centers or Smaller Building Groups, there is reached one of the most interesting and distinctive features of the St. Louis report. The idea is the grouping around a common center, especially around a small park or playground, of the various public, semi-public and private institutions which have for their object the mental, moral or physical improvement of the neighborhood. This is urged with the greatest earnestness, both in general terms and specifically. The committee selects the sites for such centers, reviewing the needs of each neighborhood and the local advantages of the selected site. It develops a complete system of civic centers, and in doing so confines itself to what would seem to be the immediately possible; for it limits its recommendations of park reservations for this purpose to the $670,000 included in the bond issue. If the plan is carried out, St. Louis will have for its congested district a series of civic centers with which only Chicago, in its South Park district, could compete. The bulk of the argument is, of course, social and philanthropic; but it is pointed out that the plan gives "opportunity for an harmonious architectural and landscape treatment of the various buildings, thus adding to the intrinsic beauty of each; would foster civic pride in the neighborhood, and would form a model for improvement work the influence of which would extend to every home in the district."

The discussion of Inner and Outer Parks and Boulevards comes next. There is mapped a complete system to connect the park and forest reservations of the county. For one of the most important of the inner links, the Kingshighway, nineteen miles long and extending from river to river and tying together the principal parks, the money has been already appropriated and detail plans are completed. As to the parks themselves, St. Louis takes rank among the first cities in the country for the relative acreage of its reservations, but heretofore it has lacked such connecting drives to bind them into a system. The report, besides discussing the Kingshighway, plans a second boulevard to follow the Des Peres River and to extend to Jefferson Barracks. The two together, it is claimed, would give to the city a "parkway system unsurpassed in variety and beauty of scenery by any city in the Union, with the possible exception of Boston. The total length of the drives and parkways would be about thirty-five miles." And yet this is only the "inner system." In the way of "outer," or country, parks there is planned a belt system of drives and reservations suggestive of the Essex County system in New Jersey, of the Metropolitan system about Boston, and of those proposed for Providence, Baltimore, Chicago, Washington and other centers. The beauty of the natural scenery around St. Louis, the rapid growth of the city, the need of pleasanter

connections with the suburbs, are pointed out in general advocacy of the plan, but the committee frankly says it has no hope or expectation of seeing so much accomplished within the next five or ten years. This part of the plan is "offered as a comprehensive scheme toward which the city can strive for the next quarter of a century, adding section after section, as the circumstances demand and the finances of the city and county will permit."

In the chapter on Street Improvements there is reached the last chapter that deals strictly with the city plan. This includes suggestions for the river front, the railway entrance, street car lines, etc. The committee, stating that it has considered the streets "from two points of view—utility and attractiveness," adds that here there are "suggested only those changes which seem possible of accomplishment within the next decade." First, as to the river front. The report calls attention to the present deplorable condition—the familiar municipal story in America: a noble site almost abandoned by business, the city turning its back upon it, and its becoming a resort of the vicious and depraved. But new plans are timely. There is not only agitation for a deep waterway to the Gulf, but the citizens of St. Louis have voted in favor of a free bridge, which in itself gives great opportunity. Inserted maps and drawings show conditions as they are and "as they ought to be." It is proposed that the property lying between the Eads Bridge and the proposed bridge at Poplar Street and extending back from the Levee to Second Street, be purchased by the city, the bluffs for the whole width excavated to a level with the Levee and a broad esplanade constructed the entire distance on a level with Third Street. Under this esplanade, at the Levee level, would be the railroad tracks. Warehouses at Third Street would have basement connection with the freight tracks, and at intervals on the river side of the esplanade there would be little passenger stations for

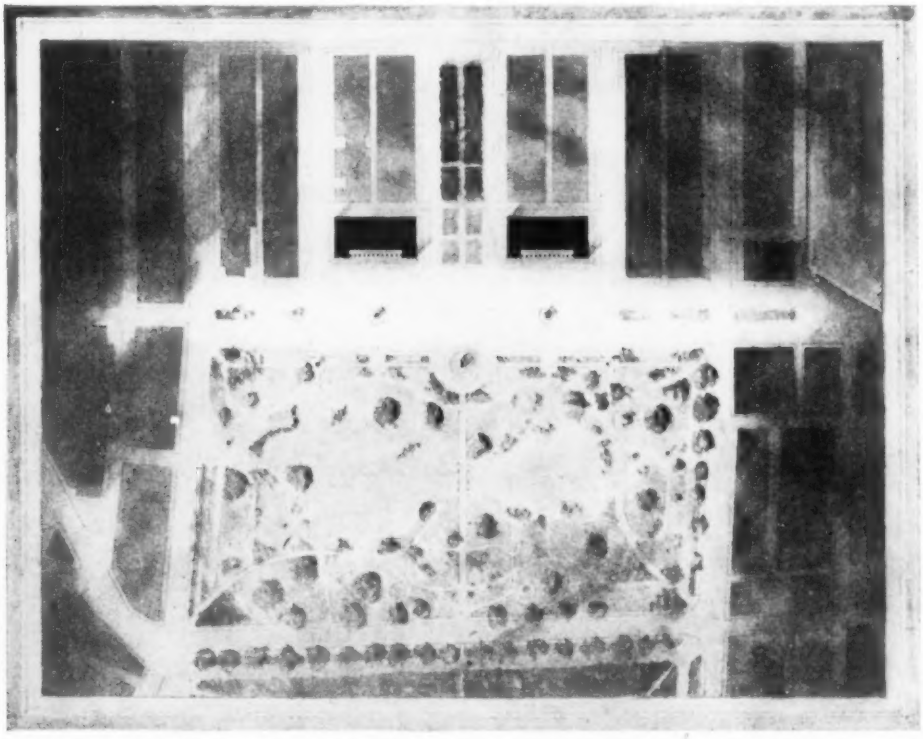
PROPOSED RIVER FRONT PLAN FOR ST. LOUIS.

Showing a broad, open Plaza from Eads Bridge to proposed bridge at Poplar street on a level with Third street. Railway tracks and passenger station under the Plaza, easy approaches from the levee, warehouses fronting on Second street, and Merchants' Exchange Court in the center.

suburban trains. Between the river level and the esplanade there would be connection by elevators and inclined roadways, as at Algiers. The suggested treatment is simple, dignified and commercially beneficial.

Of the proposed street changes the most radical are those designed to improve the approach to the Union Station. It is recommended that the city widen Chestnut Street to 150 feet from the stablishment of a building line, the adoption of better designs for street utilities. The final chapters of the report are devoted to an appeal for a Municipal Art Commission and to a discussion of the legislation that would be needed to make effective the recommendations of the committees.

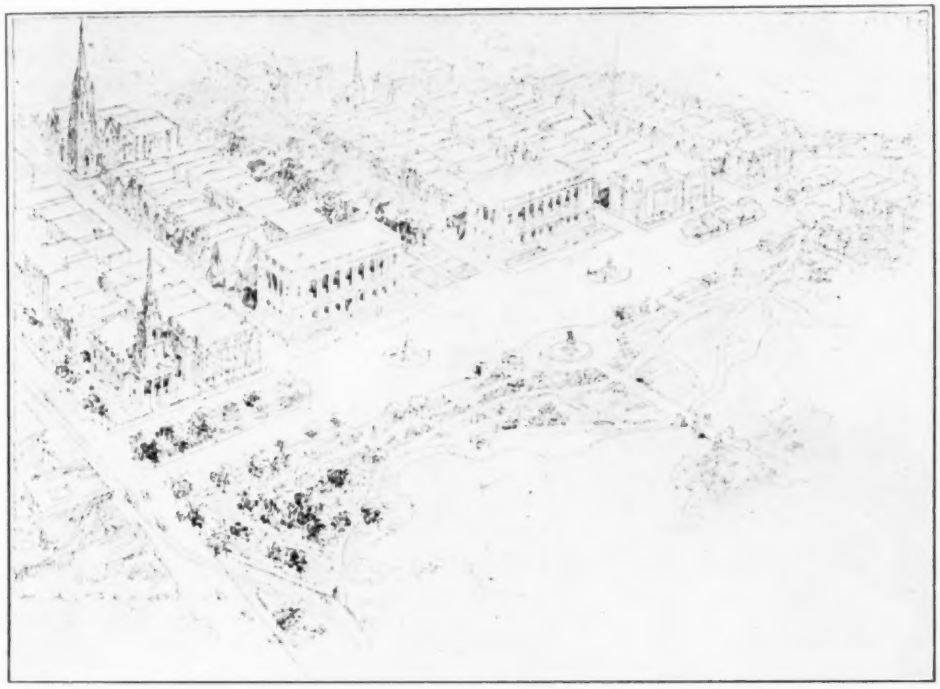
We come now to the Boston report. It begins with a statement of deplorable conditions that is not at all what one



THE IMPROVEMENT OF ARLINGTON STREET, BOSTON—PLAN.

tion to the municipal buildings group and develop it like the Champs Elysées, and that there be purchased two blocks for a small park. "These improvements would cost a considerable sum of money, but they would be of inestimable commercial value." The report also discusses at some length the improved development of the streets, the restriction of the width of roadways on residential streets, the systematic planting of trees, the removal of unsightly poles and wires, the estab- would have expected. Even, it says, "our city parks, which give us a reputation for a love of the beautiful, are now nearly a generation old, and the metropolitan parks were started thirteen years ago." It names a great many neglected opportunities and positive errors of which the city may well be ashamed. It describes in some detail and with many pictures what other cities in Europe and America are doing, and comes then to a "Diagnosis of the Case." This lays stress

on the depressing effect of large areas of unoccupied space near the center of the city—such as the freight yards on Boylston Street; the South Bay, and the abandoned lands of the Boston & Providence R. R.—and it thinks an urgent necessity is "the consolidation of the population by filling the gaps in the city plan." To this end it is proposed that certain streets be cut through the site of the old Providence Station, and that, if possible, the Boston & Albany be induced to transfer its Boylston Street freight yards to the filled-in South Bay.



THE IMPROVEMENT OF ARLINGTON STREET, BOSTON—BIRD'S-EYE VIEW.

Taking up the more strictly æsthetic recommendations, one finds many interesting studies. There are presented plans for inner and outer belt line boulevards, and for a building of new and realignment of old streets in the Fenway district, so as to obtain better cross thoroughfares. There are also printed three plans for the development of the Charles River Basin, each design showing the creation of an island in the basin. In two cases it is proposed that the island be devoted to building, adding much to the assets of the city; the third suggests that it be made a park. But far more interesting than the discussion of the manner of the island's development is the presentation of the general arguments adduced in favor of it. The basin, it is pointed out, is "three times the width of the Thames at Westminster Bridge, is seven times the width of the Seine opposite the Eiffel Tower, and about ten times the width of the Tiber at the Castle of St. Angelo." It is so broad that buildings and human activities are only faintly discernible on its distant shores, and the eye must gain its pleasure solely from sky and sea. Further, the great width very seriously separates Boston and Cambridge. Bridges are too costly to be provided in adequate numbers and are now one to a mile, as compared with four to six in the mile in London and Paris. Passage over the long bridges is often disagreeable, and one designer frankly

states that to him the present basin, from an artistic standpoint, is "empty, vague and uninteresting." He thinks an island would form a "desirable focus, would give scale to the banks, and would leave adequate waterways on either side for all practical and picturesque effects." There will be many to disagree with him, but the argument and plan are certainly interesting. From the material and financial standpoint there are apparently no serious difficulties.

Other interesting schemes have to do with a proposed extension and glorification of Arlington Street—the quiet thoroughfare now skirting the west side of the Public Garden from Boylston to Beacon Street. The plans extend the street to the north, to join the river drive; they widen it greatly for a block on either side of Commonwealth Avenue, that that may have a worthier terminal. The availability of the transformed street as a site for public buildings is pointed out, and a suggestion is that the street be extended on the south to Castle Square.

The improvement of Copley Square is another topic of interest. Four suggestions are given, but they need not now detain us, as the much-needed remodeling of the square, in accordance with the plans of C. Howard Walker, is being actually carried out. There are some plans for street changes in various parts of the city, and the report closes with a discussion of inland canals for commercial purposes and of the improvement of the port of Boston. The latter is considered at length and with many charts and maps. The point of view is the commercial and utilitarian rather than the æsthetic; but, as always, the substitution of system, of orderliness, of harmony, and of substantialness in construction for the haphazard, the unrelated and the flimsy, would in itself make for dignity and impressiveness. Indeed, the new qualities, when applied to a commercial enterprise, are beautiful in their aggregate effect.

No one can examine these reports nor this swift review of them, if it have any adequacy, without an increased consciousness of the new spirit that is abroad in our cities. And with the stronger consciousness of its presence there comes a greater respect for its quality, for its breadth, for its sanity, for its application to cities of the old architectural rule that beauty is not dependent on decoration, but on construction. There is very little that is visionary in these reports. Were the plans for each city carried out *in toto*, there is no question that each of the three cities would be far better than it is to-day. It would be better not merely to look at, but to live in, to work in, and even to pay taxes in. There would be some increase in taxes, but not very much, when allowance is made for heightened assessment values, and the returns would be large. The addition, going not to the wear and tear of daily maintenance, but to municipal luxuries, would bear rich fruit in pleasure. Finally, it is to be remembered, as the most important and significant fact of all, that these reports are not exceptional, but are typical. "There is a new competition of cities," based on a qualitative, not the quantitative, analysis.

Charles Mulford Robinson.

"Civic Improvements"

The Case of New York

The sincere friends of the improvement of our American cities in convenience and appearance should not disguise from themselves that the movement is not making as much practical headway as it should. During the past seven or eight years an enormous deal has been written about this subject. The friends of good public architecture in almost every important city in the country have sought to secure the adoption in their own neighborhood of some more or less comprehensive plan of public improvements. Beginning with Washington, many such plans have been carefully prepared, fully published and assiduously discussed in the local papers. Neither has this agitation been wholly without result. Although many stubborn attempts have been made to situate new buildings of the National Government in places which would have blocked the future realization of the plan of the Washington Commission, such attempts have wholly failed hitherto, largely owing to the fact that the influence of President Roosevelt has been consistently used on the right side. Moreover, in other cities, such as Cleveland, a certain amount of progress has been made towards the final realization of a scheme which will add considerably to the better appearance of the city. It must be admitted, however, that on the whole the actual achievements of the new movement have not been proportional to the amount of ink which has been shed on its behalf. Improvements in public art and architecture have created a great deal of interest and enthusiasm as long as they remained on paper, but as soon as it was attempted to transmute the paper into steel and stone, both interest and enthusiasm have very much diminished. Either nothing at all has been accomplished or else only half-measures have been adopted. The movement has not had the momentum to override the first practical obstacles which stood in its path. Baltimore, after the fire, widened a few minor streets, but it refused to take advantage of the opportunity to widen the most important business thoroughfare in the city—a thoroughfare which was altogether too narrow for its purpose. The disaster which overtook San Francisco last spring offered that city an extraordinary opportunity to take definite steps towards the realization of the Burnham plan, but hitherto the advocates of that plan have not succeeded in securing the adoption of a single measure which would constitute a beginning of the Better San Francisco. Perhaps, however, the worst failure of all has befallen the advocates of improved and beautified New York, and the case of New York is at once so important and so typical that it deserves special and serious consideration.

Several years ago the movement for a Better New York culminated in the appointment of a City Improvement Commission. This body was not an unofficial collection of public-spirited gentlemen. It was named by the Mayor under a resolution of the Board of Aldermen, and its expenses were paid out of the public funds. Its functions were, of course, entirely advisory. The only purpose for which it was constituted was that of offering a "pious opinion" as to the means which should be taken in order to make New York a more comely and convenient place of business and residence. Nevertheless, inasmuch as it had been officially sanctioned, its proposals presumably stood on a different footing from those of architectural or municipal art societies. The commission was, in its way, an official recognition of the fact that New York ought to be a better looking, a more convenient city, and that its authorities had decided to make an earnest effort in that direction. The appointment of the commission figured in the minds of the municipal art reformers as a substantial triumph. The idea was that it had started New York on a ca-

reer which would terminate in a greatly glorified metropolis.

About a year after it was appointed the commission made a preliminary report. This report was received with a certain amount of disappointment by the active friends of a more convenient and beautiful metropolis, because, in their opinion, it was neither comprehensive nor magnificent enough; and, as a matter of fact, it did not make any novel and startling proposals looking towards either a new street lay-out or an original and imposing group of public improvements. The report did not do much more than recommend a series of new or wider streets and avenues, the need for which was perfectly obvious and had often been pointed out during the past twenty-five years. The proposals made with æsthetic considerations exclusively in mind were similarly conservative, and fell far short of recommending what a loyal New Yorker, who looked forward to seeing his city become the American metropolis in every sense of the word, would like to have accomplished. It was, in short, an extremely moderate and relatively inexpensive group of recommendations, and the commission purposely gave it this character because its members, after considering the matter carefully, thoroughly realized the futility of suggesting any more expensive, comprehensive and magnificent scheme. In spite, however, of its moderation, the report was no sooner received than it became, for all practical purposes, a dead thing. It provoked little interest in the newspapers. The city officials never paid it the slightest attention. No influential and insistent body of public opinion was created on its behalf; and recently, when the final report was published in a handsome volume, its issue attracted very little attention. The final result of the labors of the commission was a book, and even the book, in respect to the popular interest it provoked, has been a failure. There is not the slightest reason to suppose that hereafter, when the City of New York is obliged to deal with some of the serious problems arising from its inconvenient lay-out, the recommendations of the City Improvement Commission will carry with them any more authority than that, say, of an editorial article in a daily journal. The business of making New York City a more convenient and comely place of business and residence has not been advanced in the least by the agitation which preceded and resulted in the appointment of the commission.

This failure has not been due merely to the character of the commission or the manner in which it performed its work. The members of the commission were individually both public-spirited and competent gentlemen, although it must be admitted that they did not, as a body, carry with them any great amount of prestige. The sense that they did not command much public interest or confidence doubtless made the commission more timid and cautious in its recommendations than it would otherwise have been. None the less, their actual report was drawn up in the proper spirit, because it really sought to make the specific recommendations contained in the document as practicable as possible. The commission took conscientious and intelligent consideration of the obstacles which, in a city like New York, confront even the most necessary and the least expensive street improvements. It did its best to anticipate the really serious objections which responsible public officials must always make when they attempt to arrange the means, both legal and financial, necessary to the consummation of any great scheme of public improvements. But all these precautions did not prevent the commission from failing to accomplish any result proportioned to the amount of labor and agitation which the report had cost. Its recommendations were treated by the daily press in precisely the same spirit as if only the most chimerical and impracticable proposals had been made.

The failure of the commission to accomplish any important result has been due to many causes, the most important of which is undoubtedly the lack of any vigorous, well-informed, tenacious and influential body of supporting public opinion. The residents of New York are, on the whole, more public spirited than they were twenty or even ten years

ago; but their public spirit does not as yet express itself in a vehement demand for a comelier and more convenient city plan. The point which should be kept in mind, however, is that even if such a body of opinion did exist, it would be quite unable to express itself effectually, because of the existing legal constitution and financial condition of the City of New York. Let us suppose that at the next election the municipal art reformers could secure the election of a Mayor and a Board of Estimate and Apportionment who were pledged to take immediate and vigorous steps looking towards the adoption of a new, more convenient and better looking lay-out for New York City; and let us suppose that these city officials, after their election, sought to fulfill their pledges with as much energy as the present Board is now seeking to provide an improved system of rapid transit. It can be confidently asserted that even with the best will in the world, these officials during their four years of office would be unable actually to redeem their pledges. The financial and legal means at their disposal would be wholly inadequate to the realization of such a policy, and before they could accomplish any really important changes in the street plan of New York, they would require the assistance of at least two important amendments to the State constitution.

The financial condition of the City of New York is peculiar. The constitution of the State prohibits cities from borrowing more than ten per cent. of the assessed valuation of the real estate. New York has already borrowed so much money for the liberal policy of transit, dock and other improvements which has been adopted, that the margin for future borrowing amounts only to about $50,000,000. Practically the whole of this sum, and a great many millions more, have been pledged for the purpose of building new subways, bridges and the like, and it has been found in the past that the increased borrowing capacity arising from the yearly increase in the real estate assessments is not sufficient for such regular and necessary purposes as new school-houses, new docks, new pavements, and the necessary street opening on the margin of the growing city. It would be quite impossible for the municipal authorities to make any regular appropriations for street improvements in the older portion of the city which would be sufficient to accomplish one-tenth of the recommendations of the City Improvement Commission. Neither is it relevant to answer this objection by saying that the recommendations of the commission are not intended to be carried out all at once—that its plan merely arranges for a series of improvements, which could be carried out gradually, and the cost of which could be distributed over many years. A comprehensive scheme of street improvements could no more be carried out gradually than it could be carried out immediately. The financial condition, outlined above, applies as much to the future as it does to the present. The City of New York is not competent to spend anything like as much money for improvements of this description as their importance warrants. It could do so only by abandoning the extension to the subway system and other similar public works, which are absolutely necessary to the growth of the city in population and business. A municipal administration elected for the purpose of realizing the ideas of the municipal art reformers would be similar to a government elected for the purpose of declaring a war, but deprived of the means of raising and equipping an army. Under such circumstances a declaration of war could only mean failure, humiliation and disaster.

The constitutional limitation placed upon the borrowing capacity of New York is consequently a formidable obstacle to the realization of any comprehensive plans looking towards a more convenient and better-looking city. But it is not the only obstacle. Let us suppose that the administration pledged to the ideas of the municipal art reformers succeeded in having the State constitution amended. Let us suppose that the money to be spent upon street improvements did not have to be included in reckoning the debt covered by the constitutional limitation. Even with their hands freed

in this essential respect, a municipal administration pledged to begin the æsthetic redemption of New York City would be faced by further obstacles equally formidable in character. The worst of these obstacles issues from the enormous cost of real estate in Manhattan and the large number of skyscrapers which have been erected in that borough. Land in the central part of the older city of New York is so high in price that the cost of street widenings on any large scale is absolutely prohibitive. The city can barely afford to buy the few strips of land which are necessary for terminals and approaches to the new bridges. The cost of the three small squares which are to be covered by the new Manhattan terminal of the Brooklyn Bridge will be over $6,000,000. The New York & New Jersey Tunnel Co. have had to pay more than $6,000,000 for the half-block needed for a terminal station on Herald Square. The Court House Commission recommended the purchase of three blocks on the east side of Union Square for the new County Court House, because of the comparative cheapness of real estate in that part of the city. Nevertheless, in spite of the fact that these blocks do not contain a single skyscraper, they cannot be purchased by the city for less than $11,000,000. The adoption of any satisfactory plan for a wide and handsome approach to the new Blackwell's Island bridge has been delayed for years, partly because of the enormous expense of purchasing the necessary property between 59th and 60th streets. Under such circumstances the city officials, when confronted by the absolute necessity of condemning land for public purposes, inevitably adopt the cheapest plan which has any promise of being adequate. No matter how much money a municipal administration was empowered to spend towards the realization of a better street lay-out in Manhattan, its members would not dare to commit the city to the expenditure necessary even for the most gradual realization of the projects of the municipal art reformers. A lay-out for New York, really sufficient for the purpose of making it a more convenient and beautiful city, would cost several hundred million dollars. Just how many hundred millions no one can say, but, of course, the amount of money to be spent would increase in even a higher proportion than the actual value of the specific improvements. Thus a new and very desirable longitudinal thoroughfare could be obtained at a comparatively small cost by the extension of Seventh Ave. south to Varick Street, and by the extension of a widened Varick Street to Broadway, but the new avenue so obtained, while useful, would be of minor importance. What New York particularly needs is diagonal thoroughfares cutting through the heart of Manhattan Island and relieving such centers of congestion as Herald Square, Fifth Avenue and Twenty-third Street and the like. But it is just such plans which, no matter how useful they would be, are wholly impracticable, because it is in the neighborhood of these congested centers that land is so valuable and the number of skyscrapers so considerable. No clear-headed municipal administration would dare to accept the responsibility of adopting and beginning the realization of a plan which, in the course of its fulfilment, might easily double the municipal debt, and effect an enormous increase in the tax rate.

There is only one way in which the financing of any comprehensive improvement in the street system of New York could be arranged. Some method must be found of making such improvements partially or wholly pay for themselves. Both Paris and London have very largely paid for the street improvements in those cities by adopting such a method of financing. When a specific street widening or extension is decided upon, such as the improvement of the Strand, the municipality condemns not merely the land actually necessary for the new street, but all the immediately adjoining property as well; and after the improvement is completed the land not actually needed is sold off at a profit, which is nearly if not quite sufficient to pay the cost thereof. This method has the advantage of economy of enabling the city to reap the benefit of its own good works, and of preventing the splitting up of land-

ownership on a new and important thoroughfare into lots, which are too small and too irregular in shape for a large and handsome building. But in spite of these manifest advantages, this method of financing could not be adopted in our American cities. In New York the State constitution forbids it, and it is safe to say that no radical improvement in the street layout of New York will be possible as long as this constitutional prohibition exists. Such is the second respect in which the municipal administration of New York it at the present time legally and financially incompetent to carry out the ideas of the municipal art reformers.

The task of amending the constitution even of a State is always a slow and a difficult affair; but the task of amending the constitution of New York in these two respects would be more than usually difficult. The ultimate effect of the two proposed amendments would be an enormous increase in the powers of the municipal administration. The Mayor and the Board of Estimate would have the authority and the means to embark on what would be a gigantic real estate speculation; and the danger that this authority might be abused would undoubtedly make the conservative public opinion of the State very cautious about authorizing the proposed amendments. Public opinion would want to be very much more convinced than it is that the municipal officials are incorruptible and competent before it could accept such radical changes in the legal constitution of the city; and the only way in which public opinion can be reassured on this score is by means of a considerable improvement in the quality and efficiency of the municipal government. Thus the municipal art reform movement is closely associated with the general movement towards municipal reform. As long as our municipal governments are untrustworthy, public opinion will be loth to sanction any considerable increase in their legal powers; and as long as such increase in legal powers remains unsanctioned the vision of a beautified and glorified future for our larger American cities must remain, to a large extent, impracticable. Of course small undertakings can be undertaken under existing legal and financial conditions; but such undertakings are precisely the sort of thing which will never repair the errors which are retarding the growth and distorting the appearance of cities like New York and San Francisco.

The case of New York has been considered at some length, not only because of its intrinsic importance, but because it is really typical. As other American cities increase in population and business their condition will come to resemble more and more the condition of New York. Many of these cities are undoubtedly still in a position to avoid, in some measure, the predicament which faces the people responsible for the welfare of New York City. They are in a position, that is, to benefit by the warning of New York, and to avoid some of New York's mistakes; but they can only take advantage of this position by obtaining municipal governments like that of Galveston, which is endowed with complete responsibility and large powers, and which is competent to exercise those powers in the general public interest. At the present time such is not the case. The ordinary city government in the United States is so organized that it usually lacks the necessary power to undertake in an efficient manner comprehensive schemes of public improvements. It is either too much restricted in its authority by the State Legislature, or else it is rendered incompetent by the local distribution of power between the Mayor and the Common Council. As we all know, these municipal governments have, in times past, been the willing victims of the local transit and other similar interests, and the agitation for municipal reform has been obliged not merely to insist upon the subordination of the public service corporations to the public interest, but it has in many cases also been obliged to seek the enlargement of the powers of the local government. Only by such an enlargement of powers are these governments placed in a position really to assert the public interest against that of the local corporations. It will be found in the long run that the æsthetic improve-

ment of our large cities, according to any comprehensive plan, will require an analogous reorganization, whereby the municipal authorities will be in a position to assert the public interest in this respect against the special interest, which most insistently opposes almost all such improvements. The special interest which I mean is that of the owners of real estate in our large cities.

A great deal has been written about the subordination of the American municipalities to the selfish and corrupt purposes of local franchise corporations, but when the history of American municipal mis-government comes to be written in its final form, the verdict will be that the interests of the owners of real estate have been perhaps the gravest obstacle to the making of the greater and the better American city. Our cities have been from the start governed in the interest of the owners of landed property. Such property-owners could very well afford to pay the higher cost of corrupt and inefficient municipal government, provided the local authorities left them free to reap to the fullest extent the advantage there was to be reaped from the growth of the cities in population and business. Municipal government in the United States, that is, has on the whole, been subordinated to the interest of a gigantic real estate speculation, which has ignored economy, good looks, convenient planning and all other considerations of general public interest in the effort to encourage rapid and unregulated growth. The existing plan of the old City of New York was designed almost exclusively for the purpose of affording block and lot units, which would be easy to buy and sell; and this purpose was frankly avowed at the time it was adopted. At present the local owners of real estate are always the most stubborn opponents of improvements in the public interest which in any way impair their chances of reaping their unearned reward from the growth of the city. It is their opposition which has prevented the adoption of the Burnham plan in San Francisco, and it will be found in the long run that the radical and comprehensive improvement of our large cities in convenience and good looks will be effected only, as it were, over the dead body of the great American real estate speculator. The interest of the real estate speculator demands congestion and concentration of business and population, which enormously increases real estate values along particular lines and at particular points, while the interest of the whole people in a beautiful and convenient city demands the distribution of population and business in the most liberal manner and according to an organic plan. The local interest of the individual owner of real estate in his particular property outweighs the public interest in a good general lay-out. The conclusion is, consequently, that before the visions of the municipal art reformers can ever be carried out, two vital changes in American municipal government will be necessary. Their powers will have to be increased in several different respects, and these powers will have to be exercised in a manner which makes the individual owner of real estate the public servant instead of the public master.

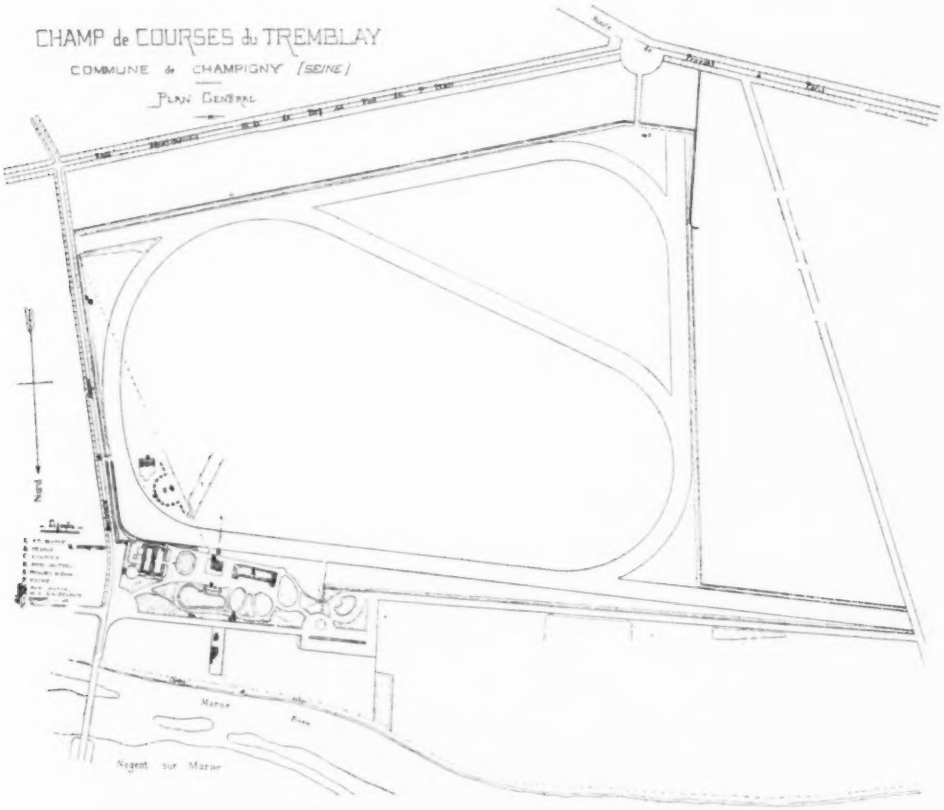
Herbert Croly.

A New Race Course for Parisians

A Paris horse-racing society found itself in need of a new race track. This was rather unusual. The powerful bodies that control horse-racing in France have long had their permanent installations. What, indeed, would the Bois de Boulogne be like without the Auteuil and Longchamps race-courses? They were constructed some thirty or forty years ago, according to plans which have remained unchanged ever since and which are similar to those of the majority of race-courses all over the world. The Grand Stands are placed mid way along the straight, an arrangement which has seemed so evidently proper as not to call for discussion.

Two years ago the *Societe d'encouragement* recognized the necessity of rebuilding the stand at Longchamps, and entrusted the task to M. Giraud, the architect who designed the Petit Palais; but the Longchamps course, that classic ground for great races, remained as it had always been.

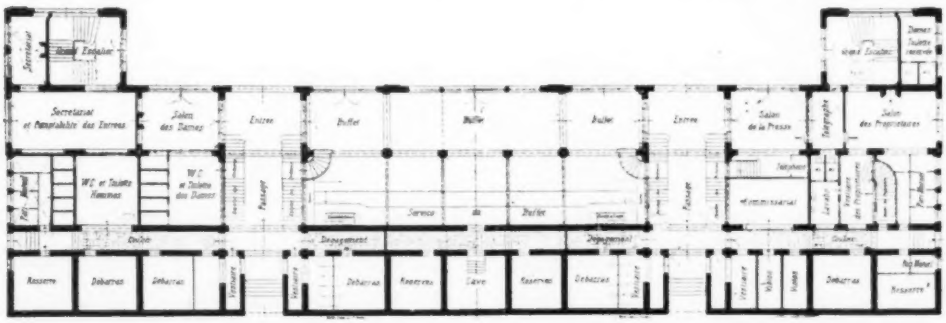
The *Societe de Sport* has had to create a new race-course, the land of the one at Colombes having been taken over by the owner for the purpose of covering it with houses, for which there



CHAMP DE COURSES DU TREMBLAY—GENERAL PLAN.
Commune de Champigny (Seine), France. M. Raquin, Architect.

is a growing demand in that western suburb of the capital. The society chose a young architect of great talent, M. Octave Raquin, to wrestle with the problem, which was the following: The ground for the new race-course was almost square in shape, and looked upon the Ile de Beauté and the windings of the Marne. The stand was to be so placed as to afford the occupants the best possible view of the track and at the same time enable them to enjoy the lovely landscape presented by the tree-lined river and the islands. A race-course also comprises a weighing enclosure, stables for the runners and, here in France, elaborate accommodation for the originality of the new race-course. As can be seen by the plan here reproduced, stand, weighing-room, etc., are all grouped together in the left-hand corner of the course, and the entire length of ground thus extends in a straight line in front of the winning-post. Moreover, with the stand placed in this spot a much better view of the track as a whole can be had. This is a very interesting innovation and one worthy of consideration for new race-courses wherever practicable.

A stand should, while protecting the spectators from the sun and the rain, allow them a clear view of the track. To attain this end, M. Raquin has re-



CHAMP DE COURSES DU TREMBLAY—THE GRAND STAND—GROUND FLOOR PLAN.
Commune de Champigny (Seine), France. M. Raquin, Architect.

the *Pari Mutuel*, the only form of betting which the law now allows.

The great novelty of the new racing track—*L'Hippodrome du Tremblay*—lies in the position chosen by the architect for the stand and the weighing-room. M. Raquin had the courage to call in question the symmetrical arrangement which hitherto has always been adopted for the race-courses of the entire world. "Why," he asked himself, "should the stand be placed halfway along the straight?" The important point, he considered, was that the straight should be as long as possible before the winning-post, so as to allow of the race being seen by all the spectators on the stand. For that, the stand had to be located at the corner of the track, but nobody had thought of putting it there. It is this feature that constitutes placed the columns which ordinarily uphold the roof by an iron veranda the span of which is ten meters, or just inside of thirty-three feet. It is a very daring and ingenious innovation. Until now, verandas of such large span have not been attempted in France, whatever may have been done elsewhere. It is an excellent thing to find it applied for the first time to the grand stand of a race-course.

On race-course stands, which are always crowded, the stairs are extremely inconvenient, and they are usually blocked with people, making it difficult to pass. M. Raquin has done away with the stairs. His stand is made in tiers of a height of 40 centimeters, about 15½ inches, with a step between each tier. The stand is thus transformed into one broad stairs rising by steps of 20 centi-

meters, 7¾ inches. It must be noted moreover that with 15½ inch tiers, each row of spectators has a good view of the track.

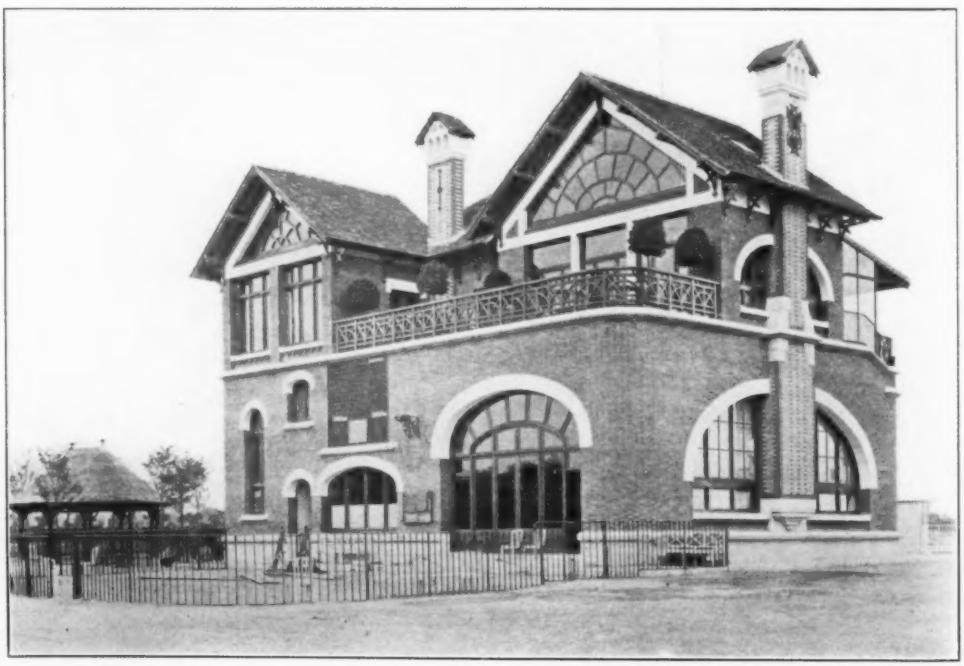
The manner in which this Grand Stand is fitted up shows a thorough grasp of the requirements which such an installation ought to meet. On the ground there are the attendants' quarters, the secretary's office, a ladies' room, a press-room, an owners' room, and a refreshment-room. Two broad staircases, located in the two square towers flanking the stand, lead up to a gallery, where we find the offices in which the *Pari Mutuel* is conducted. The spectators are thus able to bet without leaving the stand. Hitherto, they have had to run to the *Pari Mutuel* pavilions. On the roof of the stand there is a large uncovered promenade.

Let us now examine the construction of this commodious stand. As the illustrations show, it consists of a steel frame, which frame has been filled in with pink-colored bricks. For the platbands and socles white stone has been used. M. Raquin realized that it would be absurd to attempt to disguise his scheme of construction. He has, on the contrary, emphasized its main lines, so that one sees the anatomy of the building at a first glance. Its brick pillars are simply pillars, and the whole construction is open, as becomes a construction in metal. There is no more walling in it than there is in Gothic construction, which also, although different materials were used, rested its roof on piles. In this way, the Tremblay Grand Stand, instead of being a deception, architecturally speaking, as is so often the case where steel is employed, shows itself honestly for what it is, and pleases by this very frankness. With its widely-spaced pillars and large windows, this stand is a race-course stand, and nothing more. This is a merit.

CHAMP DE COURSES DU TREMBLAY—THE ENTRANCE.

Commune de Champigny (Seine), France. M. Raquin, Architect.

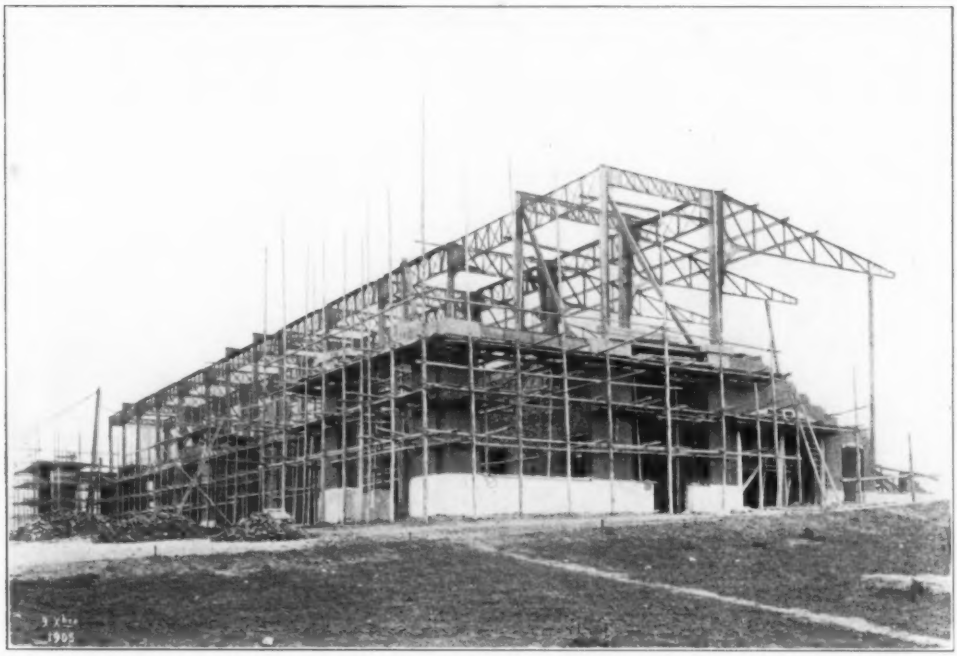
CHAMP DE COURSES DU TREMBLAY—THE STABLES.
Commune de Champigny (Seine), France. M. Raquin, Architect.



CHAMP DE COURSES DU TREMBLAY—BACK VIEW OF THE WEIGHING PAVILION.
Commune de Champigny (Seine), France. M. Raquin, Architect.

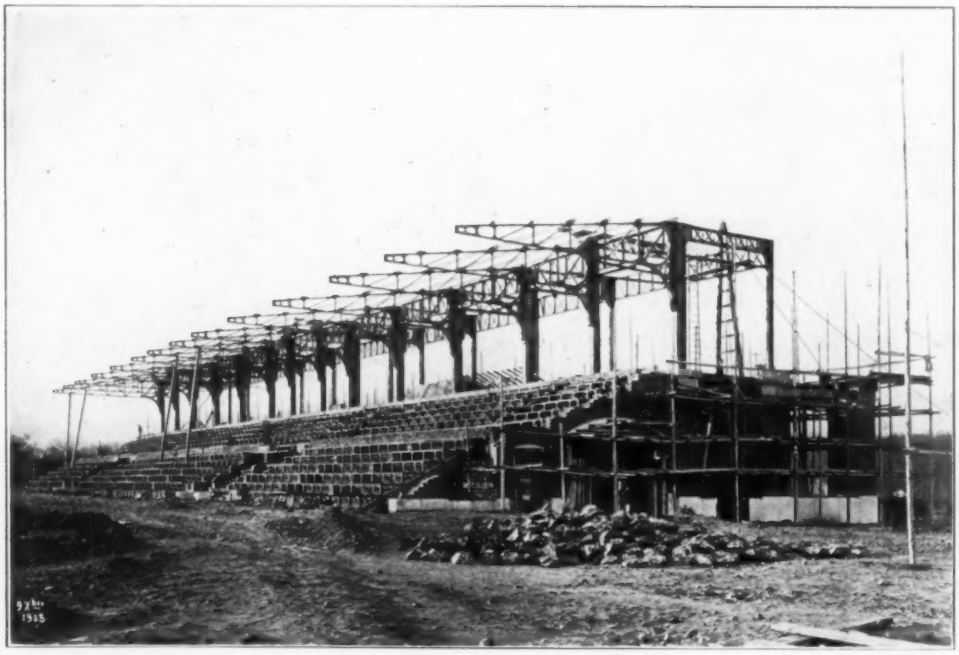
CHAMP DE COURSES DU TREMBLAY—CENTRAL BETTING PAVILION FOR THE PARI MUTUEL.
Commune de Champigny (Seine), France. M. Raquin, Architect.

CHAMP DE COURSES DU TREMBLAY—FRONT VIEW OF THE WEIGHING PAVILION.
Commune de Champigny (Seine), France. M. Raquin, Architect.



CHAMP DE COURSES DU TREMBLAY—THE STEEL FRAME OF THE GRAND STAND—REAR VIEW.

Commune de Champigny (Seine), France. M. Raquin, Architect.



CHAMP DE COURSES DU TREMBLAY—THE STEEL FRAME OF THE GRAND STAND—FRONT VIEW.

Commune de Champigny (Seine), France. M. Raquin, Architect.

The weighing pavilion is placed alongside the Grand Stand. This is another innovation, for generally it has been put behind, without any particular reason. This pavilion has a specific purpose; it is there that the jockeys are weighed before and after the race. Furthermore, it was necessary to provide therein a bath-room and a dressing-room, a room for the committee and their guests, and accommodation for the trainers.

The different views of this pavilion which are here given bear witness that M. Raquin has cleverly utilized the very complexity of this plan to design a picturesque edifice which should fully meet every need while being most pleasing to the eye. Here he has used the same materials as in the Grand Stand, namely, pink bricks and white stone, but in this case the metallic framework had no *raison d'être*.

Another indispensable building on a French race-course is the *Pari Mutuel* pavilion, on which are posted the results of the betting operation for each race, the names of the horses winning and placed, with the amount they have brought to their backers. This pavilion is very happily conceived, and we admire the good sense displayed in the matter of materials.

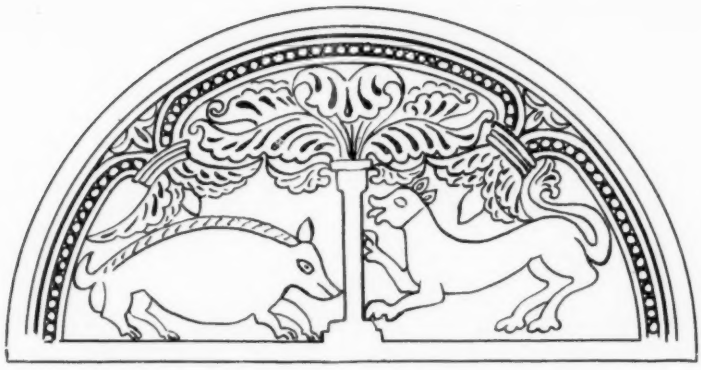
CHAMP DE COURSES DU TREMBLAY—GRAND STAND AND WEIGHING PAVILION.
Commune de Champigny (Seine), France. M. Raquin, Architect.

We also reproduce a photograph of the stables for the runners. They comprise fifty-six stalls. Here white brick alternates with red.

The Tremblay race-course buildings embody all the latest improvements, and hence it seemed to the undersigned that plans and photographs of it could not be without interest to his American readers.

Jean Schopfer.

JESSE TREE WINDOW AT THE CATHEDRAL OF AUTUN, FRANCE.



NORMAN SACRED TREE AT ASHFORD, ENGLAND.

The Jesse Tree

A comparative study of myths and symbols, together with their migration and transmutation, points to the unity of the human mind: to a period when all mankind was in possession of certain fundamental truths; hence making against the popular theory of development from barbarism to civilization, and in favor of the theory of degeneracy; a falling away from primal truth.

Just how the correctness of either of the above theories is to be demonstrated beyond dispute is difficult to say, and probably the demonstration is impossible. There is one fact, however, on one side of the question, which is incontrovertible; that is, that there is no record of a people passing from a state of savagery to one of culture without first coming in contact with a nation more civilized than themselves, who either brought them new truths, or stimulated them to develop a faintly remembered or obscured truth: a part of their race traditions.

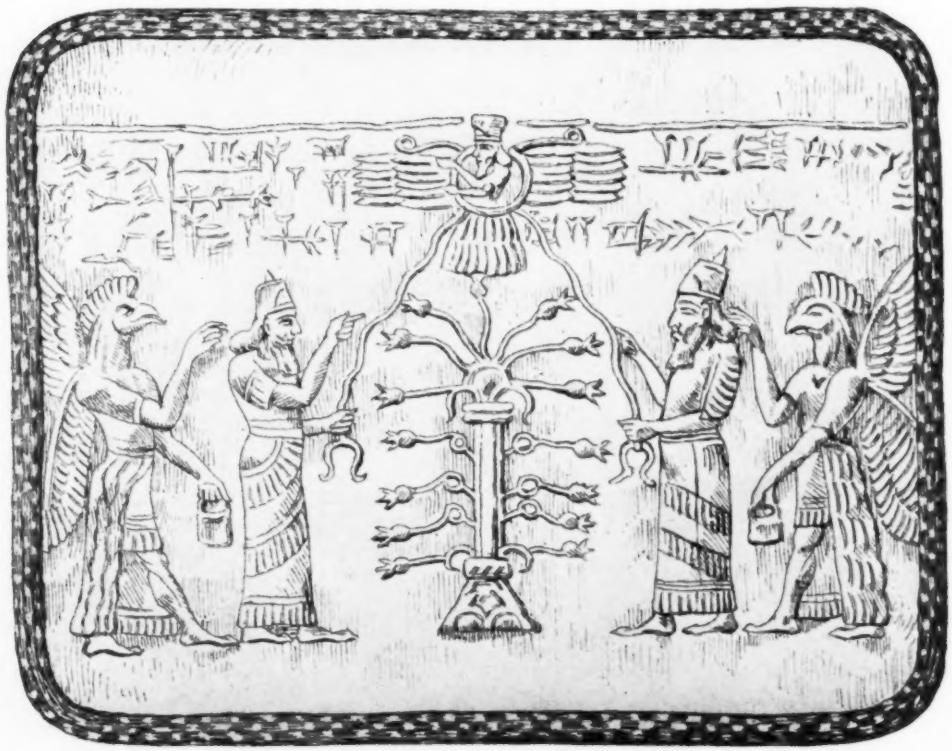
The history of the tree-symbol and attendant myths apparently tend to establish the correctness of the theory of degeneracy. Starting with the cosmic symbolism of the tree, and tracing it among all people through its various forms, such as the tree of life, the tree of death, the tree of knowledge, the tree of temptation, the tree of plenty, the tree of salvation, there will be found a correlation in which there is a conservation of a given truth, whether it relates to something in the past or in the future, even when the dogma taught is false, for underlying the symbolism of the myth there is always a basic verity: a remembrance, as it were, of a primitive truth.

The tree-symbol, like other world-wide symbols, discloses to the student the identity and persistency of tradition. Although here, as in many other cases, the tradition is intermixed with error; nevertheless, because of the basic truth it contains, it is of great value to the scientific inquirer, and makes evident that due weight in all historical and archæological investigations must be given to the probabilities of the truth of a persistent symbolism, before drawing a conclusion, or the investigator may find his conjecture brought to naught, overridden by the fidelity of the tradition to the original facts.

Again, the tree-symbol demonstrates that the *past* is often found in the *present,* as it now has its place, as a symbolic ornament, just as it had in by-gone ages, both in the religious and decorative arts of almost all, if not all, the civilized or semi-civilized nations: in other words, it has been employed as a teaching ornament from the most remote times, and is so used to-day. In looking back it will be seen that it held a most important place in Semitic art, attaining its highest artistic expressions during the Assyrian ascendancy; and that from Mesopotamia it migrated, on one hand to the whole of Western Asia, and from

thence around the Mediterranean basin; while on the other hand, it passed into Persia, and from there all over Eastern Asia, finally reaching in its migration the New World, possibly direct from Java, as the Sacred Tree of Central America strongly resembles that of the Javanese.

In portraying this symbol each nation made choice of the tree or plant it deemed the most precious, hence it is purely arbitrary, as the symbolical meanings of the trees, no matter in which group they are placed, are closely allied and overlap one another, which is easily understood when it is remembered that all of the symbolic trees are offspring of the Cosmic Tree: a symbol of nature, of the universe, and essentially of the creative power. The universality of the symbolism of the Cosmic Tree is made clear by the words of the ancient hymn



THE SACRED TREE OF ASSYRIA.

sometimes depicted as a palm, or a cypress, or a pomegranate, or a fig, or an oak, or an ash, or an apple, and not infrequently as a vine; and often, no matter what the tree may be, its flower is the lotus: pre-eminently the "Flower of Life," redolent of the idea of resurrection and immortality.

For the purpose of study, Sacred Trees are divided into three groups, viz., Cosmogonical, Paradisaical and Prophetical; these divisions, however, are

of Erider—a city given up to religion—sung at the very dawn of history: "Its seat (root) was the central place of the earth, its foliage was the couch of Zikum the (primeval) mother. Into the heart of its holy house which spread its shade like a forest hath no man entered; there is the home of the mighty mother, who passes across the sky. In the midst of it was Tammuz* (the sun): the

*Tammuz; his name signified literally "the son of life." Babylonians and Assyrians. A. H. Sayre, New York, 1899.

spouse and child of Zikum." The singers of these words believed the rustling of the leaves of this sacred tree was the voice of the divinity, hence by listening to the rustling a foreknowledge of the Divine Will could be gained, and by entering its shade men became as "God, knowing good and evil." Thus it is seen that in the Cosmic Tree of Erider there

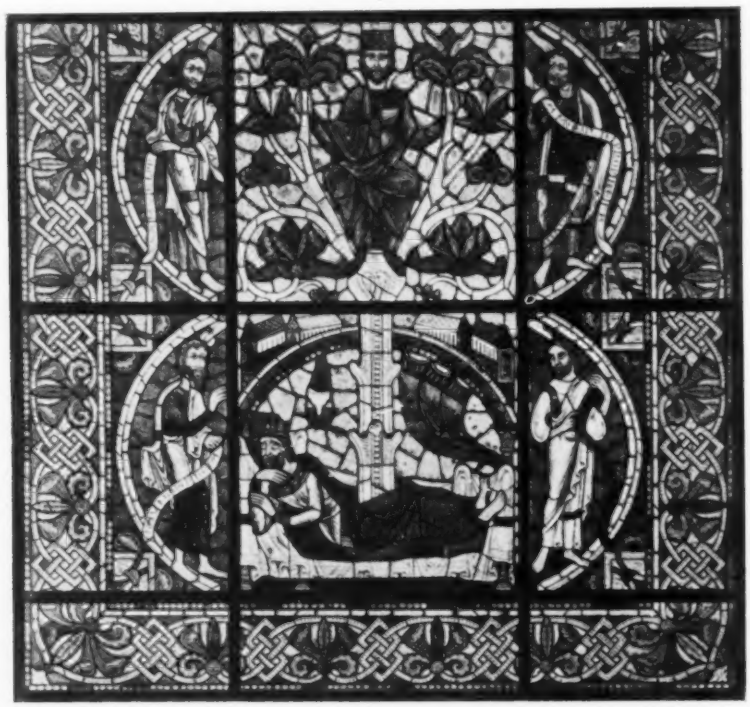
A JESSE WINDOW, EARLY XIII. CENTURY—UPPER PART.

is wisdom, prophecy and life; in other words, it belongs in turn to the three groups. The symbolic relationship between the Cosmogonical Trees and all other sacred trees is further illustrated by the Cosmic Tree of the Scandinavian mythology, a tree of three roots: the root of life, the root of death and the root of punishment; its branches reaching to heaven. After the introduction of Christianity among the Scandinavians, and before it had gained a firm hold upon the people, and while the old superstition was still rife, it was said that the Child Jesus lived in its topmost branches.

In passing it is well to note that many of the sacred trees, in addition to their inherent symbolism, are also calendars, like the tree described in the Book of Revelation: *the tree of life which bare twelve manners of fruits, and yielding her fruit every month,* and like that of the Chinese, that bore a fruit every day for the first fifteen days of the month, after which one fruit fell off each day until the thirtieth day; if, however, there were only twenty-nine days in the month, one fruit withered without falling off.

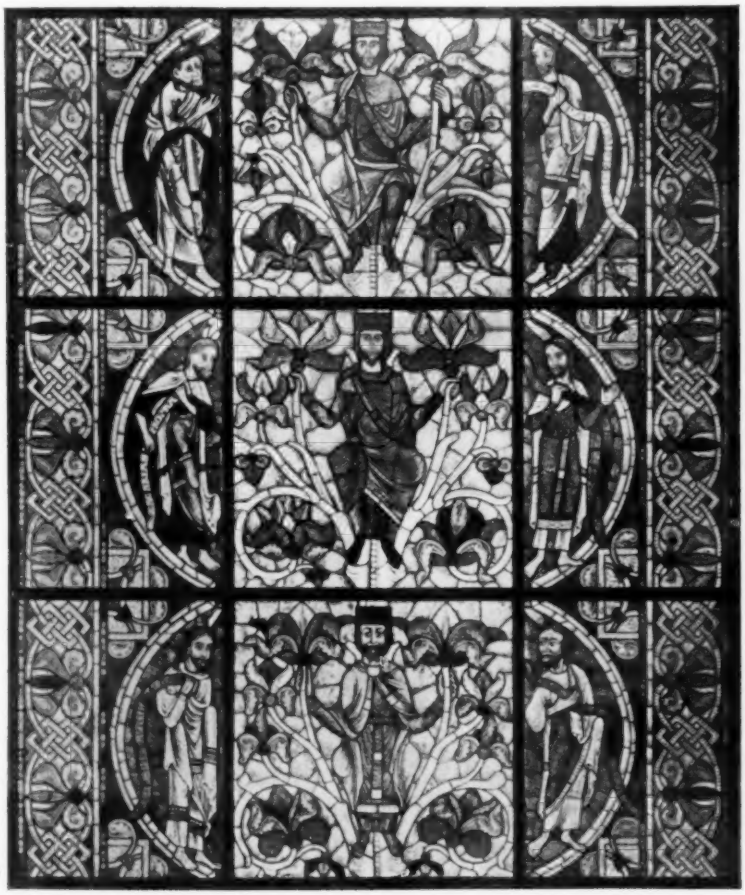
After the establishment of Christian-

ity the tree-symbol took a new lease of life and re-entered Europe by the road of Byzantine art under three forms: The Tree of Paradise, the Tree of Life and the Jesse Tree. The first was usually represented with the serpent wound about the trunk, Adam standing on one side of the tree and Eve on the other. The second one was portrayed in a variety of ways; one of the most interesting was that called *Peredexion*, a fruit tree with doves upon its branches, eating the fruit, and on the ground near to the tree, but not under its foliage, a dragon, the enemy of the doves, but who is afraid of both the tree and its shadow, so that if the shadow is from the west the dragon is shown on the east of the tree and vice versa; and there was always at the feet of the dragon a number of dead doves. The tree symbolized the Holy Church, the shadow God the Son (the Highest shall overshadow thee. Luke I., 35); the fruit, the gifts of the Holy Ghost (Isaias II., 1-2); and the doves, Christian souls (Be ye harmless as doves. Matt. X., 16). The lesson is that a Christian must do no evil, but hold strongly to the teaching of wisdom, feed upon the bread of life, never stray from the church, keeping within the shadow of Grace. The third one, the Jesse Tree, was of far more decorative and symbolic value than the others, and began to grow and bloom in the garden of Christian Art in the very early Middle Ages; in the Twelfth and Thirteenth Centuries it became a common subject of illustration in manuscripts, embroideries, and a marked decorative feature in both the outside and inside of church buildings. For example, at Chartres it is carved in stone over the north porch of the Cathedral, and it is again shown in colored glass in one of the west windows of the same edifice.



A JESSE WINDOW, EARLY XIII. CENTURY—LOWER PART.

In the eyes of the superficial observer the Jesse Tree, outside of its decorative quality, is merely a pictorial genealogy of Christ. Such a supposition, however, is erroneous, for it is not only genealogically, but it is also symbolically the Tree of Life; in fact, it is the Tree of Salvation: an epitome of the doctrines



A JESSE WINDOW, EARLY XIII. CENTURY—MIDDLE PART.

of the Incarnation and Atonement; a pictorial emphasis of the prophecies that prove the divine origin of its fruit. Just when or where it was first employed, or who invented it, is not known; it was founded on the following words of the prophet Isaias:

"And there shall come forth a rod out of the root of Jesse, and a flower shall rise up out of his root. And the spirit of the Lord shall rest upon him: the spirit of wisdom and understanding, the spirit of counsel and of fortitude, the spirit of knowledge and of goodness. And he shall be filled with the spirit of the fear of the Lord. In that day the root of Jesse, who standeth for the ensign of the people, him the Gentiles shall beseech, and his sepulcher shall be glorious."

And on the words of St. Paul, recorded in the Acts of the Apostles:

"I have found David, the son of Jesse, a man according to my own heart, who God, according to His promise, hath raised up to Israel a Saviour, Jesus."

The pictorial Jesse Tree is generally composed of a tree or vine, together with representations of the Christ, the Blessed Virgin, Jesse, the kings and the prophets. Jesse, at the foot of the composition, recumbent, with a tree or vine growing out of his loins; along the line of the trunk the royal ancestors of the House of David; just below the top of the tree the Virgin Mother, and to crown all the figure of the Redeemer, at once its blossom and fruit, surrounded by seven doves, emblematic of the gifts of the Holy Ghost. Sometimes this arrangement is varied by the tree finishing with a representation of the Holy Mother with the Divine Child in her arms. Among the foliage, on the right and left of the trunk of the tree, are grouped the prophets, who foretold the birth, death, resurrection and everlasting priesthood of the Lion of the Tribe of Juda; as a rule they carry a ribbon or label on which is inscribed the first words of their prophecies, although in some Jesse Trees the ribbon is omitted, the prophets simply representing the Jewish people, whose whole history was a perpetual prophecy of the expected king. The prophets portrayed and their words employed were the following:

Isaias: "Behold a virgin shall conceive and bear a son, and His name shall be called Emanuel."

Ezechiel: "Behold, I myself will seek my sheep and will visit them; I will seek that which was lost; I will save my flock; I will gather you together out of all the countries and will bring you into your own land."

John the Baptist: "Behold the Lamb of God; behold Him who taketh away the sins of the world."

Joel: "He shall be the hope of His people, and the strength of the children of Israel."

Amos: "And He will utter his voice from Jerusalem."

Michaes: "Behold the Lord will come forth out of His place; and he will come down, and will tread upon the high place of the earth."

Habacuc: "God will come from the South and the Holy One from Mount Pharan. His glory covered the heavens, and the earth is full of his praise—death shall go before His face."

Sophonias: "In that day it shall be said to Jerusalem: Fear not; to Sion: Let not thy hands be weakened; the Lord thy God in the midst of thee is mighty. He will save; He will rejoice over thy gladness."

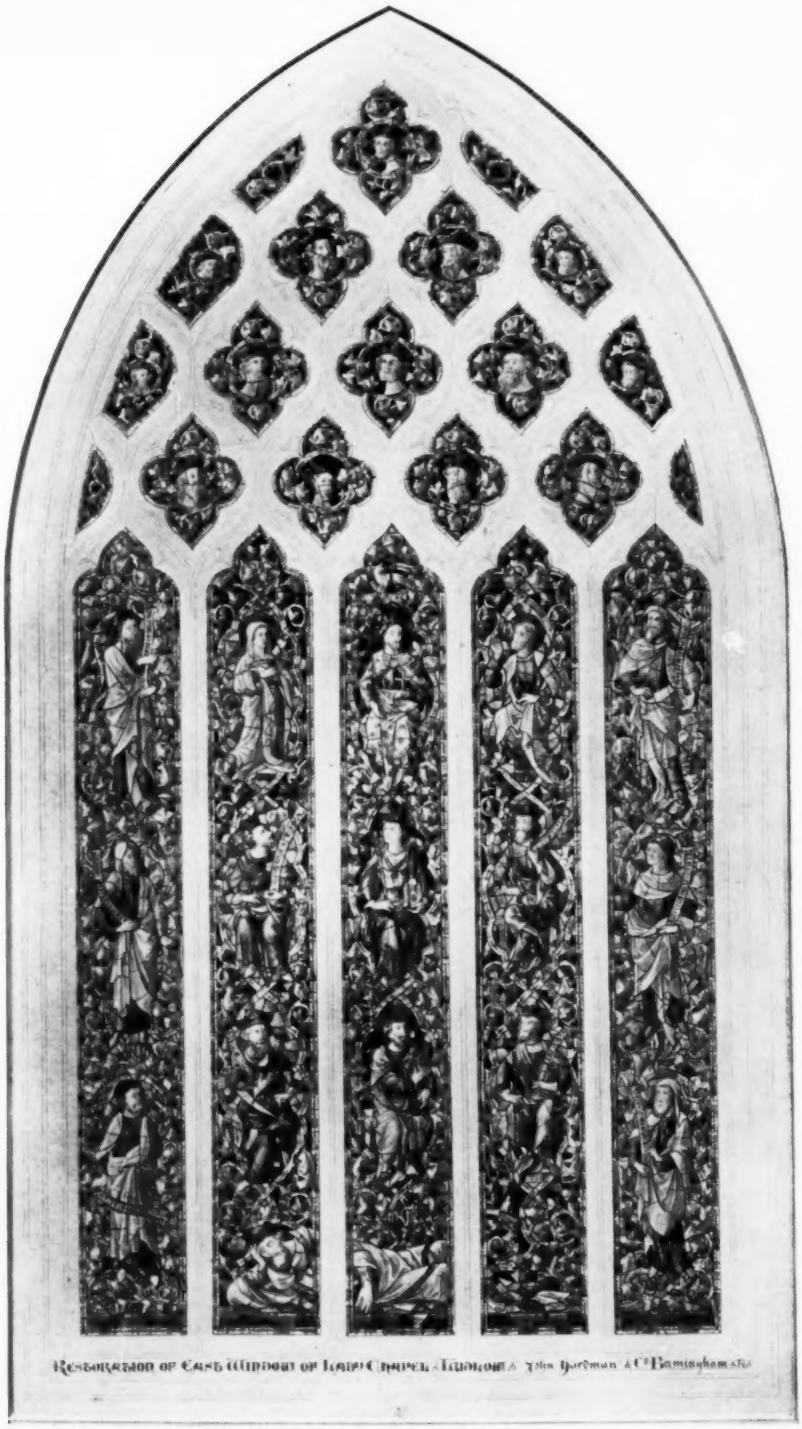
Aggeus: " I will move all nations; and the desired of all nations shall come; and I will fill this house with glory."

Nahum: "Behold upon the mountains the feet of Him that bringeth good tidings and that preacheth peace."

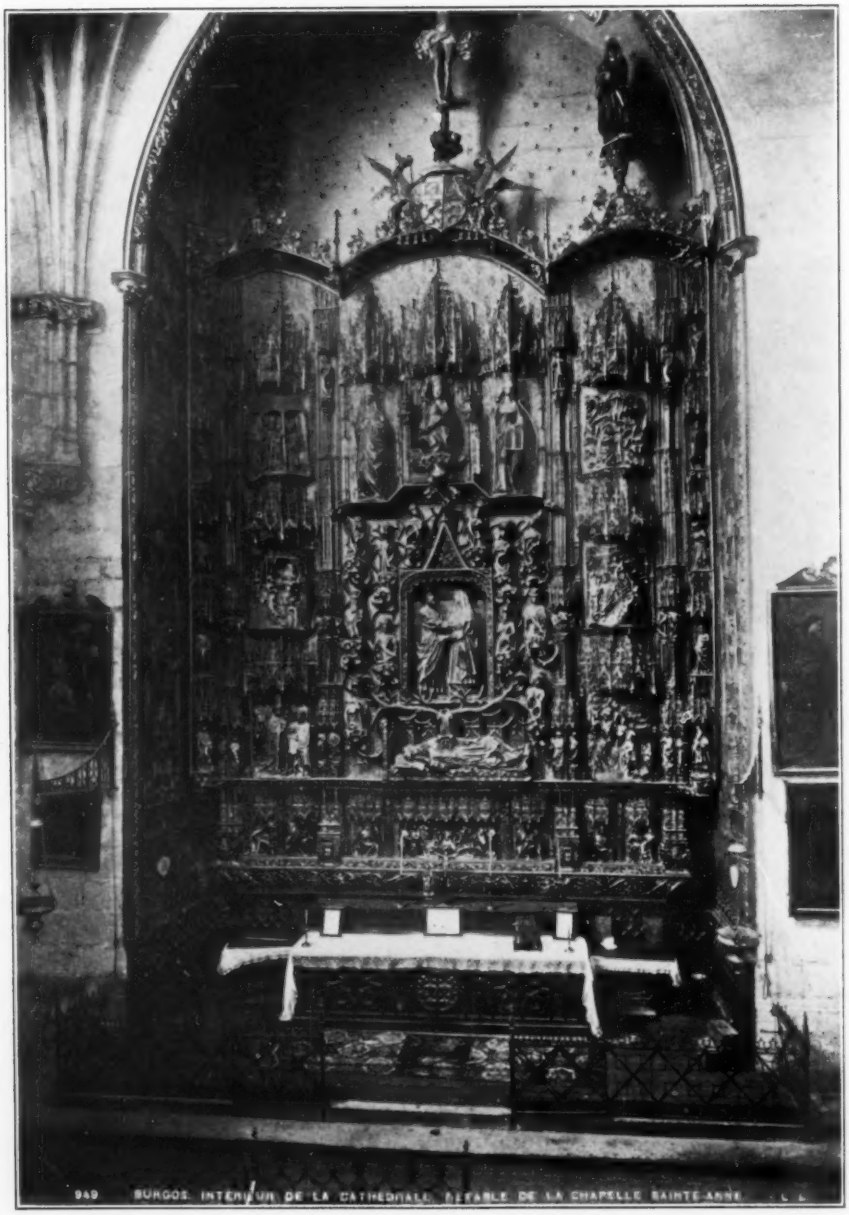
The Jesse window at Chartres, a work of the year 1145, is the finest existing example of the mediaeval conception of this form of a sacred tree. It is divided into three compartments in width and seven in height, these divisions being emphasized by the iron armature, which sustains the weight of the glass. Through the central compartment grows the tree, springing from Jesse, who lies asleep at the base of the window, and upon the branches, which extend into the side compartments, stand the figures of the prophets, while the ancestors of the Redeemer are arranged along the trunk. In color this window is a most exquisite composition, aglow as it is with brilliant and burning reds tempered with blues of pure limpid sapphire tones, and violets melting into dark rich purples, in conjunction with deep yellows and soft browns, dark and light greens passing into olives, and all of a gem-like preciousness in their beauty. A modern observer of discernment, upon seeing this window, was led to utter a great truth concerning all colored windows. He said: "Is not glass painting, of all arts, that in which God does most to help the artist; the art which man, unaided, can never make perfect, since the sky alone can give life to the color by a beam of sunshine and lend movement to the lines? In short, man fashions the form, prepares the body and must wait until God infuses the soul."

The Jesse Tree was always a favorite design with glass painters in every age of their art, and was widely used in France and England, not only in the great cathedrals and larger churches, such as Chartres, Rheims, Beauvais, Canterbury and York, but also in many parish churches and monastic chapels, and they are today the best windows to study to acquire a knowledge of the various changes in style of design that has taken place from period to period.

The full decorative value of the Jesse Tree is no doubt to be seen in stained glass windows, yet it is also seen to advantage in illuminations, embroideries and mural paintings, on account of the color employed; nevertheless it is almost as attractive when carved in stone or



MEDIAEVAL JESSE WINDOW IN THE LADY CHAPEL AT LUDLOW, ENGLAND.
Largely a restoration made by John Hardman & Company, of Birmingham.



JESSE TREE REREDOS IN THE CHAPEL OF ST. ANNE, BURGOS CATHEDRAL, SPAIN.

JESSE TREE REREDOS AT BRAUNAU, GERMANY.

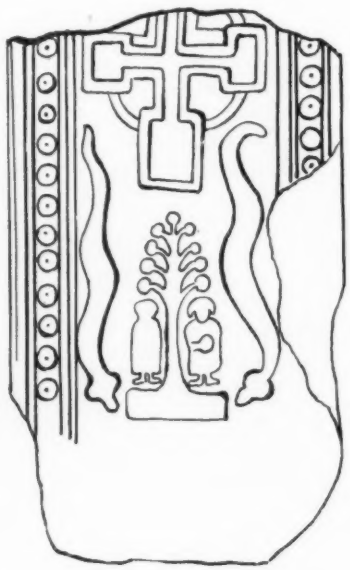
wood, or wrought in metal, as may be seen in the trees over the royal porches of the Cathedrals of Amiens, Rheims and Rouen, as well as on many choir stalls, church chests and doors in France and Germany. The last named country possesses the finest mediaeval painted Jesse Tree now in existence, which covers the whole ceiling of St. Michael's Church at Heldersheim, a work of the Twelfth Century; a most interesting example of Gothic art.

So decorative is the Jesse Tree motive that even engravers have essayed to use the design in a pictorial way, as witness the celebrated etching by Israel von Meckenen, and as for printers and binders of prayer books, they have constantly employed it as an illustration or as a decoration for their bindings from Thielman Kervier in 1497 to Burns and Oates in 1907.

The Jesse Tree still flourishes in the garden of ecclesiastical art. The preference, however, being given to the conventionalized rather than the pictorial form of this ancient symbol, except in the case of windows, where it is often depicted in all its fulness, such as the one in the Church of the Advent, Boston; in the First Presbyterian Church, Pittsburgh, and Christ Church, Poughkeepsie.

It is coming more and more in vogue, as it offers a great opportunity for the artist in colored glass to display every side of his art to advantage.

Caryl Coleman.



A CELTIC TREE OF KNOWLEDGE AT FARNELL, SCOTLAND.

The Two Carraras

Whole Mountain Ranges of Rare Marbles, Both in Italy and Vermont, Which Have Supplied the World's Greatest Sculptors and Architects Since the Dawn of Art.

Picture an ocean of snowy mountains, crest beyond crest, range above range, until the hindmost is lost in the pearly mist of an Italian sky. And a narrow valley running inland from the Mediterranean and rising till it reaches the billowy foot hills robed in olives and vines, brought up sharply by the vast masses of white—"the snow the gods had made eternal."

GENERAL VIEW OF THE MARBLE COUNTRY IN THE AMERICAN CARRARA, PROCTOR, VERMONT.

This is Carrara, the marble world where 11,000 men are at work with great teams of oxen and old-world blasting methods, supplying the sculptors of the world with statuary stone. It is here that the grandest sculpture man ever chiselled—the colossal "Moses" and "David" of Michelangelo—have lain in embryo. And the statues and monuments of the earth's greatest—kings and poets; great divines and warriors.

The walls and columns of the chaste and classic Parthenon of Athens were hewn from these dazzling mountain walls; with the Roman temples of Mars and Jupiter, and all the exquisite material that changed the "city of brick" into the serried marble palaces of Imperial Rome, Mistress of the World.

From this one range the world draws

UOFM

its sculptors' marble to-day, as it has done from prehistoric times of Goth and Vandal and Lombard. The Marble World has known the sway of Pisan, Luccan and Genoese Republics, as well as that of the Tyrants of Verona and Milan. I left the main line at Avenza, near Italy's great Naval Arsenal of Spezzia. Carrara's port is Avenza; its old turreted and pinnacled castle looks down on a white world of pure marble—

THE CUTTING MACHINES AT WORK IN THE AMERICAN CARRARA.

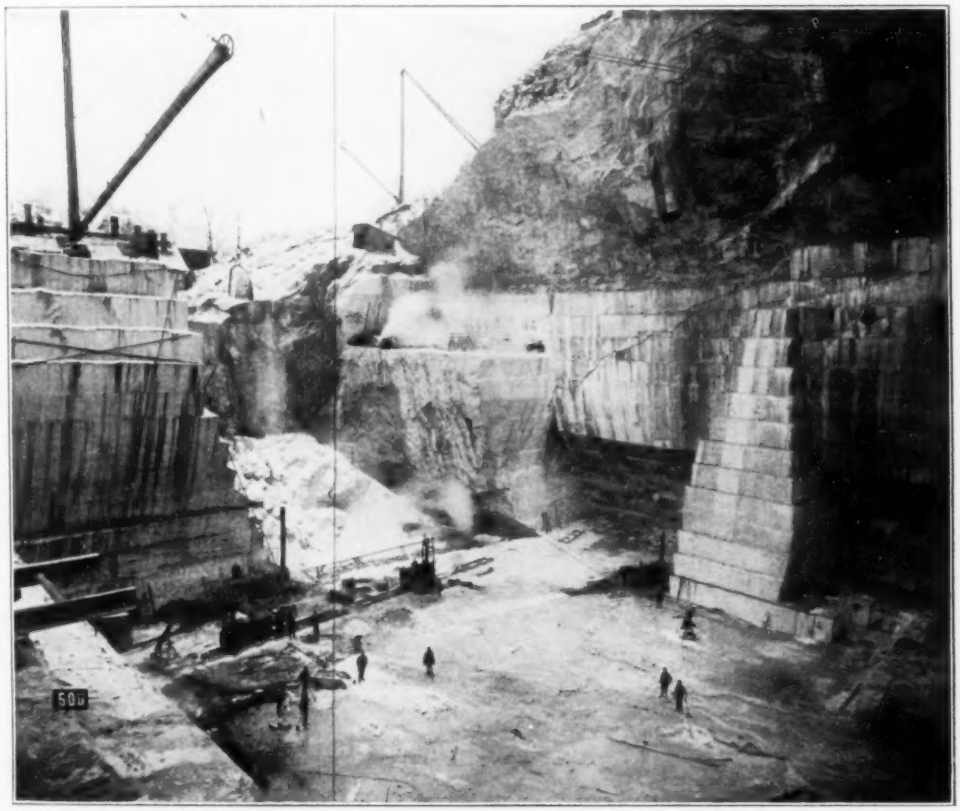
the *marmio statutario*, known to every artist.

A quaint little line covers the five miles from the port to the marble city, and throws out branches into the lateral valleys. Side by side with the fussy little engines you will see great toiling bullock-teams—eighteen horned monsters to each dray, piled high with colossal rough-hewn blocks. A man sits between the yoke of each span armed with an iron-tipped goad that has come down from Roman days.

I noticed some of the great branching horns were painted vermilion to show when a bullock was vicious. And often the cumbrous drays are mere rough sledges of unhewn timber mounted on old Roman wheels,—often enough solid discs of wood or iron. The load may consist of a block weighing 60 tons.

Here is a whole countryside of 45,000 people, all living on marble. The air is grey with the dust. Houses and workshops are built of it; at every corner of the villages you will see huge blocks, with youngsters perched on top, working away with mallet and chisel. But, of course, the far-famed quarries—470 of them, worked by 9,000 laborers—are the center of attraction; and the rumbling boom of explosions in the lofty marble mountains seem to call one to their heart.

There is but one car on the miniature line which is used for passengers. It has no roof, but is fitted with wooden seats and leather cushions; none but quarry-owners use it. Behind us trailed four other cars laden with miscellaneous goods, food, bedding, and general necessaries for the workers up in the mountain, who only come into the towns and villages at long intervals.



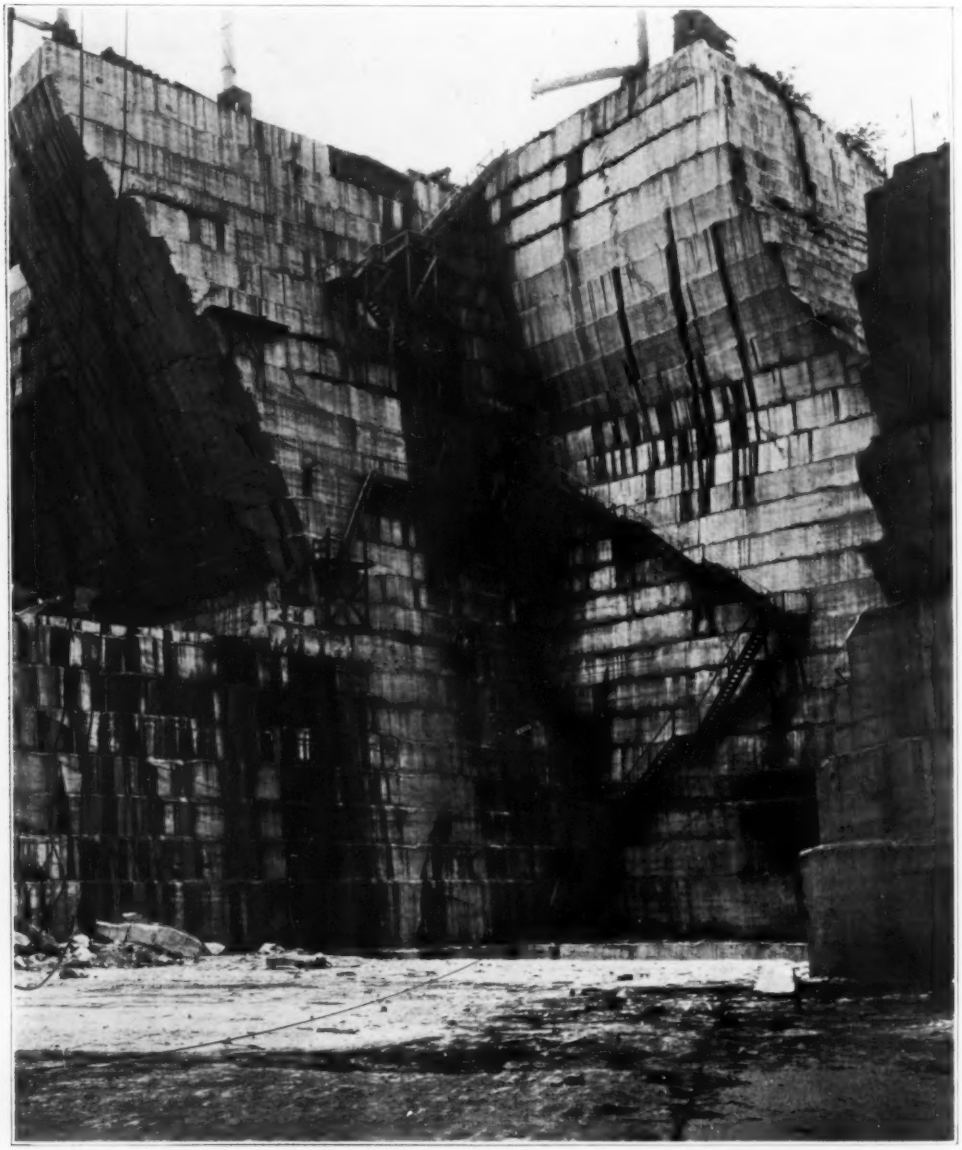
THIS VIEW GIVES A GOOD IDEA OF THE GREAT SIZE OF THE BLOCKS AS THEY ARE QUARRIED; NOTE THE SIZE OF THE WORKMEN BELOW.

As we climbed the hills I noticed that the very tunnels and track-ballast were all of marble. Far as the eye could reach appeared torrents and oceans of the glistening white stone, apparently enough to rebuild all the cities of earth and leave enough for their tombs! At frequent intervals I noticed the old disused Roman quarries. Then, as now, there was no tunneling, but all face-blasting. And so hewn and blasted have the marble mountains been for a thousand years that they have been cut and riven into peaked and pinnacled masses, like vast old cathedrals.

The deep boom of the explosions grew nearer; and craning out from the car I beheld 50-ton masses tumbling from the white face of precipices like pebbles. Enormous as the distances are up here, the tiny black specks one knows to be men stand out as clearly as flies on a wall, by reason of the amazing whiteness of their background.

One black spot would appear; then one heard a blast on a horn, answered by others and taken up by the echoes; which died away gradually. Next one saw swarms of the little black "ants" speeding to the shelter of bomb-proof or case-

mate. For a few moments not a soul was seen nor a sound heard. Then came the deep boom of the explosion; a cloud of smoke; a faint rattle; and a far-distant shower of "pebbles," some of them weighing from 30 to 50 tons each.

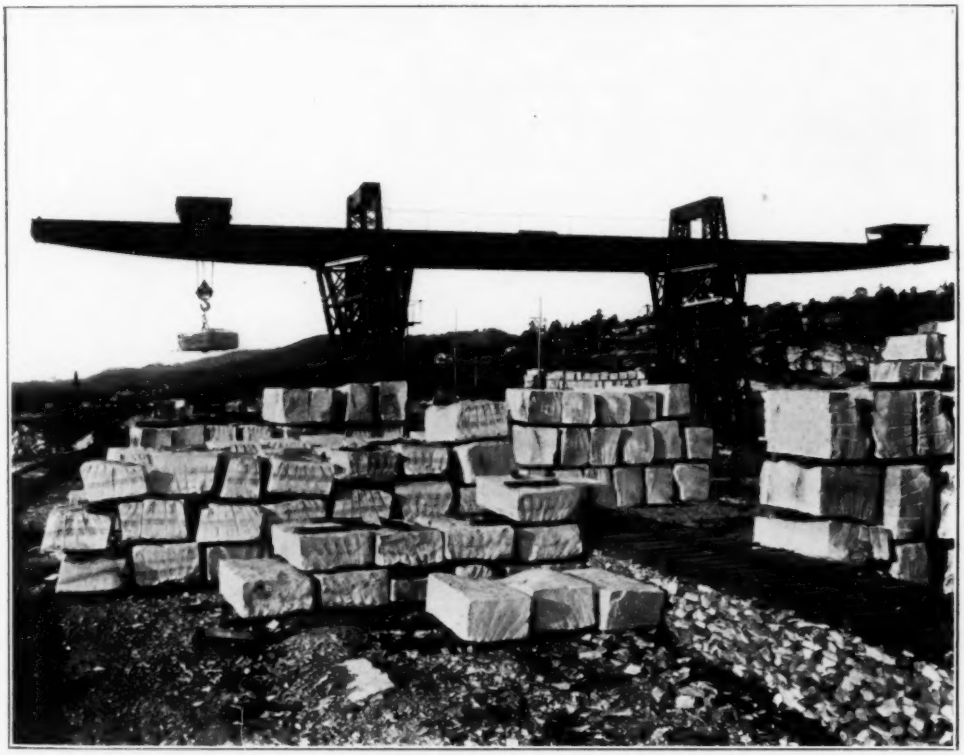


THE DEPTH OF THE QUARRY IS HERE WELL SHOWN BY THE NUMEROUS FLIGHTS OF TEMPORARY STAIRS.

A moment later the "ants" swarmed out again from all sides, drilled more holes, put in fresh charges, and once more waited for the welcome sound of the blasting horns, which means a few minutes' interlude. Sometimes a great mass is sawn from the living rock by an endless wire passed through a drilled

hole, and revolving over great drums. The flinty gravel, sand and water for this operation are brought from long distances; the water is often conducted by flumes from the mountain streams.

The blasting, as might be supposed, is a delicate operation,—not only from the safety point of view, but also because too large a charge of powder or dynamite would result in flawed marble. Dynamite is only used to clear a mountain-face or precipice in order to get at the best quality of stone. A dynamite blast in the ordinary way would result in mere rubbish, or marble broken into fragments too small to be of value.



ONE OF THE GREAT CRANES FOR LOADING BLOCKS ON TO THE TRAINS.

Many of the quarry-owners employ their own men for the work of production, and contract for the transport of the marble to the mountain rail-head or wagon-road, and thence on to Carrara or direct to the "Marina," or landing-place of Avenza. The men upon whom the most difficult work falls are known as the *lizzatura*. These convey the marble over the trackless slopes between the quarries and the rail-head.

Take a great fragment of marble detached by the blast. When it has stopped rolling its weight is estimated at perhaps forty tons, and it is roughly squared into a block. Then the dexterous *lizzatura* set about getting it down—a work involving strategy and tactics of no mean order. Stout posts are driven into the loose stones and marble waste, and the great block is raised on to a soaped skid of hard beechwood by crow-bars and screw-jacks. But before doing this the mass is secured by five-inch hempen cables, and allowed to slide slowly down.

A continuous slip-way is provided; but the work is most critical. And, like miners, these men are reckless to a degree. Formerly the *lizzatura* used but

one cable to hold back the ponderous block, until the Government, rightly regarding their work as dangerous, passed a law that at least three cables should be used. The men work in gangs of fifteen, and five or six deaths take place every year through the workers being crushed.

Their work ends when they have hand-levered the giant mass over rollers onto the low freight car. The *carazana*, or masters of the bullock-wagons, also have a terribly toilsome task, for the mountain road down to Carrara is more like the wild, stony bed of a torrent than a beaten road. At one time there was some talk of improving the port of Avenza, so that big steamers might take the place of the smaller coasters now engaged in the trade. But as Carrara produces only marble, and no vessel could load up with it exclusively on account of its great weight, the scheme was abandoned.

The men engaged in this work are sturdy, hard-working mountaineers, not in the least like the Italians of the town. Some of them have to climb as much as six miles at dawn to reach their work, and their pay only ranges from four to five dollars a week! The employment is hereditary; and as soon as the shy little boys can be of the slightest help they are taken up into the quarries and put to work.

The best quarries lie in the valleys of Torano, Miseglia, Bechsano and Colonnata. Here the very finest white and colored marbles are found; but the loveliest statuary marble of all comes from Serravezza, nearer to Massa Carrara. The average cost of ordinary marble at the "Marina" of Avenza is about $15 a ton, the transport from the quarries costing about $3 a ton. The total annual output is about 200,000 tons, and the supply appears inexhaustible. Carrara as a marble producer has never had a rival; and with a whole mountain range of the pure white stone above and behind it, it seems likely to keep its supremacy for ever.

But we have a Carrara of our own here at home in the Marble Belt of Vermont, and it has been worked, though by vastly different methods, for over a hundred years. Prior to 1800 a little surface marble was used for funeral monuments; and generations later the vast deposits were worked in a casual way. But no one then saw much in an industry which is to-day so prosperous that one concern alone has an output of $2,500,000 worth every year!

And to think that only sixty years ago a farmer, weary of wrestling with Vermont's stony soil, traded all his acres for an old horse, wherewith to make his escape from the Green Mountain State! Yet had that man but gone deeper, he and his descendants must have become millionaires.

For beneath that arid hill-farm lay some of the most precious marble deposits the world has ever seen, such as have supplied architects, builders and sculptors throughout the length and breadth of this great land.

America's Carrara is found at West Rutland, Proctor, Brandon, Pittsford, and other points in that locality, which have given up in vast quantities every known variety of marble, including a precious stone rivalling that of Pentelicus, with which was constructed the immortal Parthenon, the Hippodrome, and other classic structures of ancient Athens —not forgetting the imperishable material in which Phidias and Praxiteles wrought their marvelous sculpture.

Marble veins appear to thread the State from north to south, some of them a blackish-blue, others red and green; mottled, striped, wavy, or variegated in a thousand ways. In the midst of this immense and important industry looms the figure of Senator Redfield Proctor, who became identified with the American Carrara just prior to 1870, when the State was credited with marble sales barely totalling $130,000 a year.

An inspiring sight is it to visit the stupendous quarries at West Rutland, where one peers down in the dazzling stony abysses more than 300 ft. deep and perhaps a third of a mile long. Here is one colossal vein containing several quarries, supported by massive rock pillars, which appear to hold suspended the entire hillside.

Standing on the brink, one gazes down through steam and smoke, marveling at

the hive of industry below, whose rattle and hum come faintly up. As in the Italian Carrara, the thousands of workers look like tiny ants; great, powerful engines, mere toys, and mighty cables and chains like the strands of a spider's web.

Slender stairways, clinging like vines to the precipice face, and zigzagging back and forth, lead down to the quarry floor. A dangerous and giddy journey for the novice, comparable only to escaping from one of our loftiest city skyscrapers by means of the external fire escape.

Here marble is not blasted for fear of shattering. It is, in fact, cut out in immense rectangular blocks weighing many tons. Needless to say, with characteristic American ingenuity, curious and powerful machines have been devised for the purpose; and by their aid a solitary skilled operator will do work which formerly took 50 or 100 men.

The "channeling machines," as they are called, run back and forth on tracks, and are provided with powerful drills, which cut slits about an inch wide and up to 10 ft. in depth. Slow work, of course, and depending much on the marble's quality. Sometimes a slab 20 ft. long and 8 ft. deep will take 24 hours of constant work before it can be drilled from its position.

MARBLE FOR AMERICA'S BEAUTIFUL BUILDINGS—PILES OF BLOCKS AWAITING SHIPMENT.

And when a perpendicular cut has to be made, steel drills of great power come into play, driven by steam or electricity. One could not imagine a greater contrast with the Italian methods. Steel wedges are sometimes used, and the loosened block is raised by great derricks, after which it is sent to the mill to be sawn into slabs of the size required.

This sawing is curious work, dating—

at all events, in principle—back to ancient times. Sand, running water, and a toothless iron saw, are necessary for this work. A powerful machine moves the saw back and forth against the stone, while a stream of water holding sand in suspension, pours constantly over it.

The sharp edges of the sand cut the stone as the iron strip works small pieces of the silicon back and forth against the block. This also is a slow, tedious process, and from 20 to 30 hours may be taken to saw through a 5-ft. block.

As might be supposed, thousands of car loads of the sand are used annually in the mills; but, oddly enough, the quarries are provided with an extensive sand deposit not far from Proctor. True, a mountain lies in between; but the sand is successfully carried over its summit in a series of big iron buckets, hauled by an endless cable.

From the mills the slabs and blocks go to the polishers; and from that are passed on to expert workmen, who shape them roughly, according to the needs of the buyer. You will see expert operators carving solid stone into shape almost as easily as the artist moulds his clay. This "magic" is, of course, due to the pneumatic chisels used.

A veritable world of marble is here. It ranges from snow white to mottled green, gravish blue, and a hundred other shades. Towards the southern end of the county, the marble becomes very coarse; while, on the other hand, to the north it grows much finer in grain, until it reaches a state where it becomes very friable.

The supply is practically inexhaustible; and the next half century, far from seeing any diminution of the industry, will witness an immense increase in the amount of marble quarried; for not only is the demand increasing in leaps and bounds, but it seems that the larger and deeper the workings become, the more extensive appear the veins of every kind of marble which a luxurious age demands.

W. G. Fitz-Gerald.

THE FINISHED PRODUCT.

The Evolution of the Modern Warehouse

The warehouse of our boyhood days was a structure that impressed our young minds with its look of massiveness, sombreness and strength. It seemed to be indestructible; it was built for ages. In fact, its grim walls, its dusty windows, warped floors and mouldy beams seemed to have come down to us from times immemorial to go on lasting forever. We loved to climb over the mysterious boxes and barrels, getting ourselves covered with cobwebs and to lose ourselves in the dark, gloomy aisles. Our well-worn shoe soles would pick up splinters from the equally well-worn pine floors, and we would catch our clothes on rusty nails protruding from the oak posts. We would wonder at the great projecting wood blocks laid across the top of the oak posts relieving the massive beams and like good friends lightening their burden.

The great cracks in the wall or the undulating floors had no especial significance for us. We thought it great fun to pull the hemp elevator rope and would wonder at the ease with which one could make the heavy platform ascend with a still heavier load, and the others would lean over the rail and watch it come slowly up to where we were, and then we would let ourselves as slowly down again, although some of the boys would start for the ricketty old wood stairs, declaring that they could beat us down by that way, and they easily did.

VIEW OF FOUNDATION, SHOWING THE GROUND FLOOR GIRDER FORMS AND STEEL REINFORCING RODS PROTRUDING FROM THE BOXES—TERMINAL WAREHOUSE.
Kansas City, Mo. Elzner & Anderson, Architects.

And when evening came, and with it quitting time, the porter would bank the fire in the rusty old stove, then close the clanging iron shutters here and there where they had been opened for the day, and finally would lock the massive wood door and walk away with a great heavy brass key with all sorts of mysterious teeth, and by the size of it we could not see how any one ever could break in through that door.

One day there was a fire and our dear old warehouse burned to the ground, as many of its kind have done before. And

there were many more that did the same harm all over the country. As we grew older this trouble seemed to be increasing and insurance companies were heavy losers. Something had to be done, but neither owners nor builders seemed to know what. Finally the insurance companies began investigations along carefully prepared and scientific lines, with the result that they evolved the slow burning type of building, or what became known as mill construction, because it was first applied to the textile mills of New England. This construction aimed chiefly to do away with the common flimsy joist and thin flooring and to substitute therefor heavy timbers and flooring of thick planks so as to have the wood used as much as possible in thick, solid masses that could not burn freely, so that in case of need there might be afforded time to fight a fire before it could gain much headway. There were other features, many in fact, and extending to the minutest detail. Concealed spaces between floors and in roofs were avoided; the heavy wood bolster caps on the posts were replaced by small iron ones called pintles, thereby avoiding a great deal of shrinkage; the ends of beams resting on walls were beveled off and anchored at the bottom instead of at the top, so that they might not pry the wall and over-turn it in case the floor construction gave away in a fire. Elevator shafts and stairways were enclosed by brick walls and the openings protected by fireproof doors made of wood covered with tin, and so on. An elaborate set of rules was established, all aiming to produce a building which might be saved, or at least not result in total destruction in a fire. To crown it all the insurance companies insisted upon equipping the interior of the building throughout with an elaborate system of water piping so arranged that the heat from a fire would automatically open a lot of outlets and spray the water in all directions, hoping thereby to extinguish the flames. This rapidly developed into the modern well-known automatic sprinkler system.

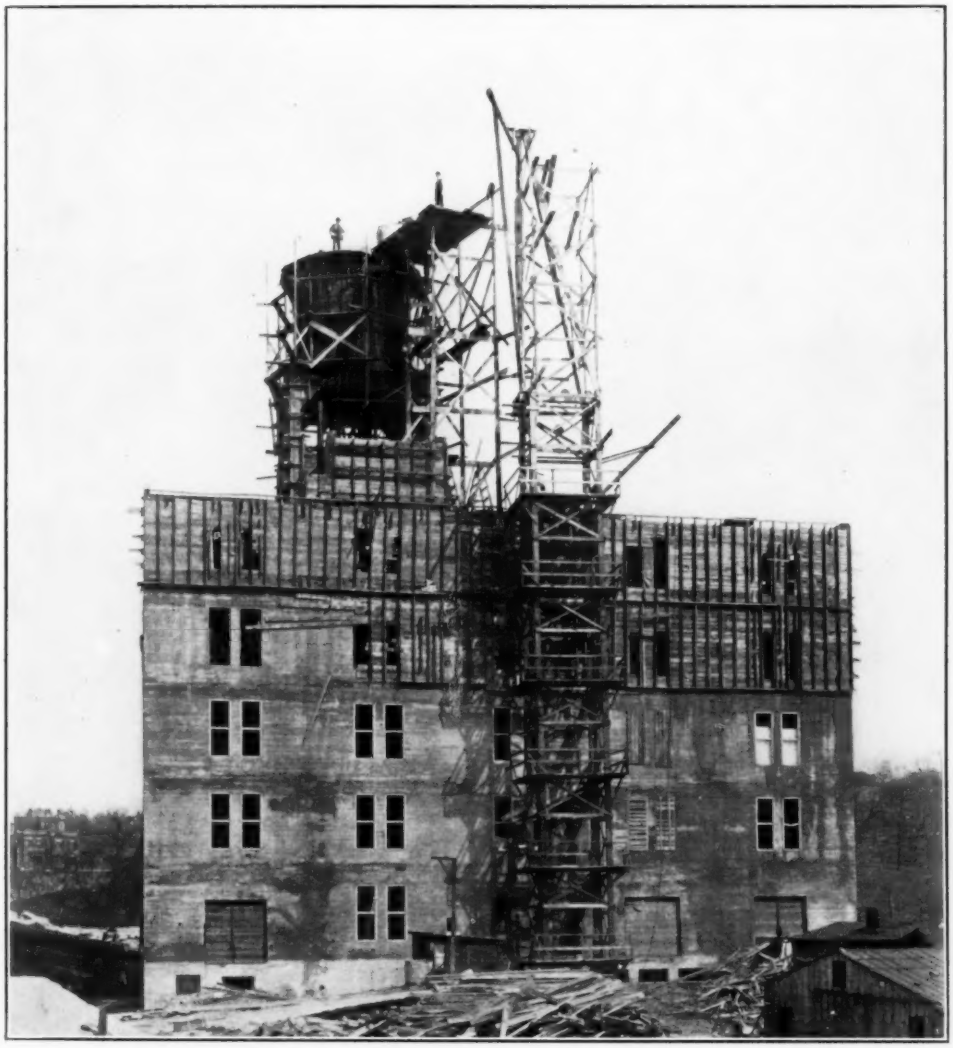
This type of building was readily acknowledged to be far superior to the old style of construction, and was promptly and almost universally adopted by all who could not afford to build a so-called fireproof building, constructed with a steel frame with hollow terra-cotta covering and floor construction. It required a great deal more capital to build in this fireproof manner, and as long as the insurance companies were offering low and tempting rates for mill construction, it was but natural that this method prevailed and gained rapidly in favor. Accordingly the country was built up everywhere with mill-constructed buildings in more or less strict accordance with the insurance rules and recommendations, and we all felt safe against the attack of the old common enemy, the fire fiend.

Again, we were growing older, and as time went on, fires began to break out in our mill buildings, and to our great surprise and consternation they went down before its fury, just as they did in the old times, only not so fast, on account probably of the local fire departments which to-day are truly marvels of efficiency. But in spite of this efficiency, many, many cases of total destruction were recorded, and the insurance companies again became worried. The surveys were more thoroughly made; surrounding risks were more carefully considered, rules and regulations of all kinds were revised again and again. All manner of fire-preventing devices were invented, tested, adopted, rejected, remodeled, improved, tested again, and so on, until the poor architect was fairly exhausting himself in a frantic endeavor to keep track of everything, to be up with the times and to produce the most approved type of building, one that a fire could not destroy.

It was indeed discouraging and well-nigh disheartening, for all efforts seemed to be of no avail. An ordinary fire might be controlled and often was, but if such a fire was not caught in its incipiency, or if the local fire department was not equal to the emergency, or if perhaps, the water supply ran out, the inevitable result was total destruction. Our mill buildings were in fact then simply licked

up by the flames; all our rules and regulations, our precautions and our watchfulness were of no avail. The results were everywhere the same.

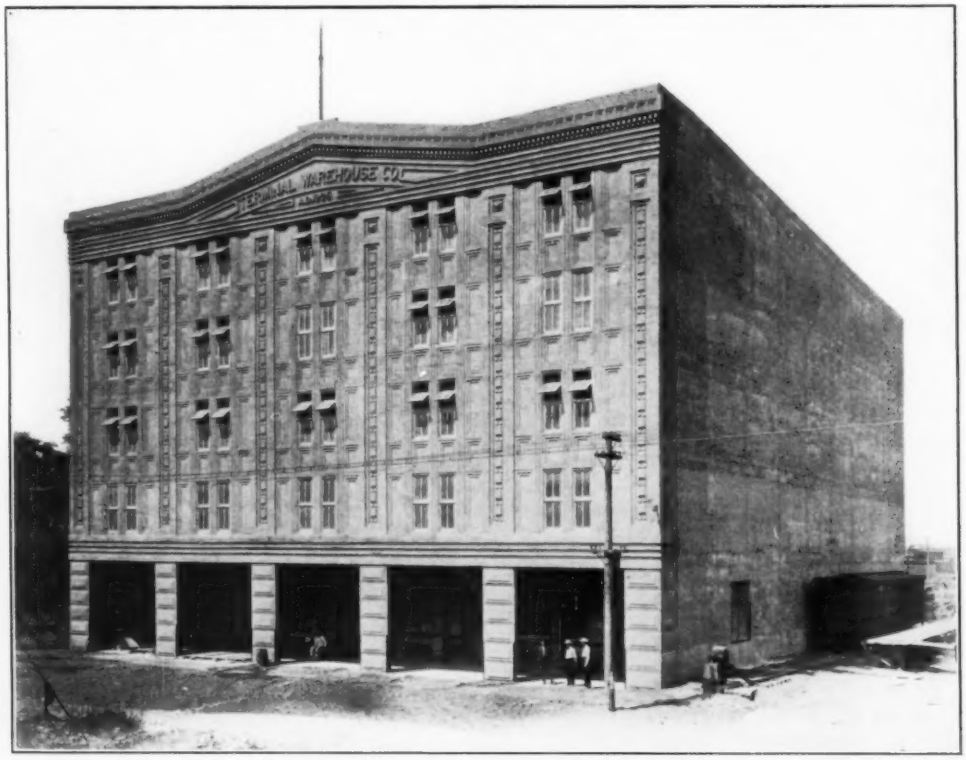
But we have at last grown wiser and have found a way to check, if not to stop forever, the ravages of the fire-fiend among our warehouses, and for that matter we could and should apply the same principle to all other classes of buildings of any consequence. The principle is to rob him of his fuel and thus to starve him out. We have found a way to bring really fireproof buildings within the reach of all, and that too at such a small increase in cost over the popular mill construction that the increased investment is fully justified by the decreased fire risk.



VIEW OF REAR, SHOWING THE TANK—TERMINAL WAREHOUSE.
Kansas City, Mo. Elzner & Anderson, Architects.

The new method of construction is exemplified in the Terminal Warehouse Company's new building at Broadway

and Twenty-fourth Street, Kansas City, Mo. The building stands unique in that the use of wood in any form has been entirely avoided throughout the building. It has been absolutely eliminated, for it was felt that above all, a fire is best avoided by having nothing that will burn. The next principle to follow is to construct the building in such a manner that it will be absolutely fire-resisting. This



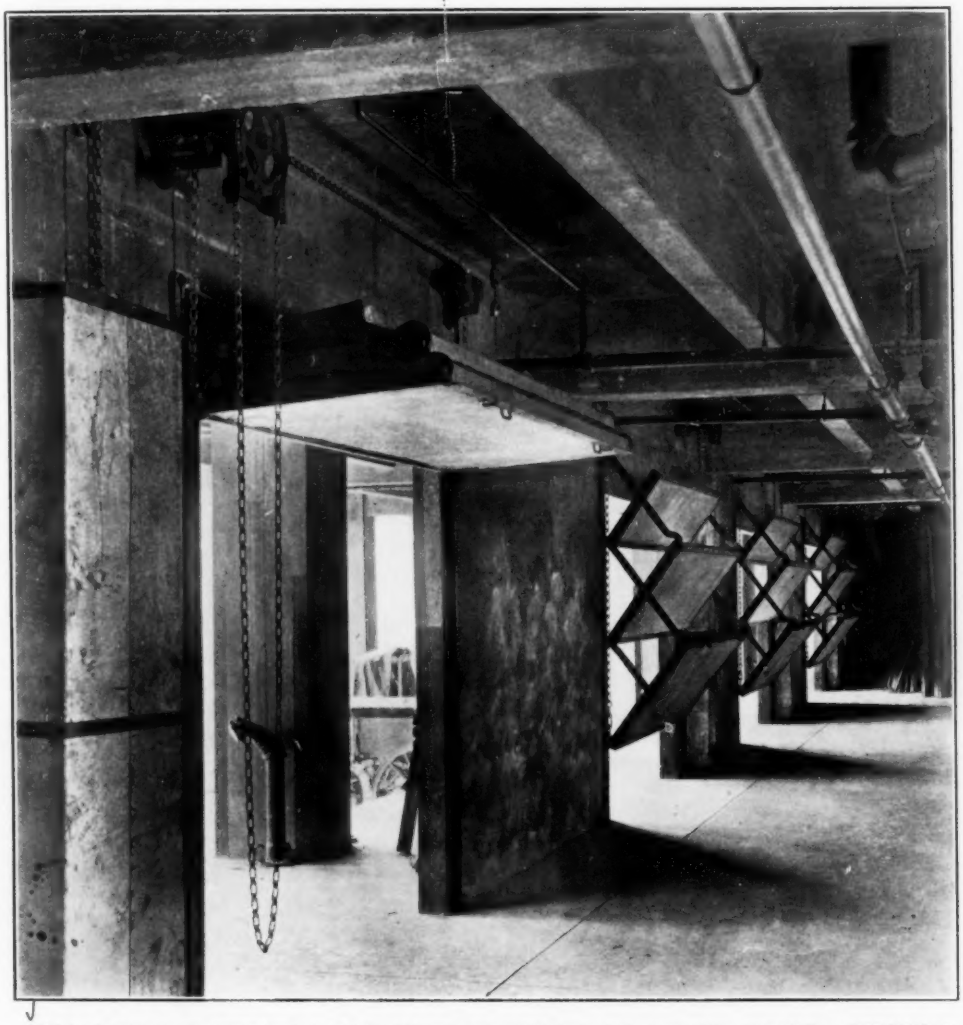
FRONT VIEW—TERMINAL WAREHOUSE.
Kansas City, Mo. Elzner & Anderson, Architects.

cannot be accomplished by building the walls of brick, the material most commonly used for that purpose, for it is well known that while a brick wall will not burn, it cannot successfully stand up for any great length of time against a hot fire; it will collapse and naturally carry destruction with it in its fall. The only kind of construction that has been found not to give way in the hottest fire is reinforced concrete. Even structural steel must be heavily protected by brick, terra-cotta or concrete, in the absence of which a fire would rapidly reduce its strength and cause collapse. Such damage has never resulted in buildings where reinforced concrete has been structurally used. The worst damage that results from very hot fire is a spalling off of some of the surface mortar, the injury never extending to the reinforcing steel. Even in such extreme cases the damage can be easily repaired by plastering the damaged places with a rich cement mortar.

In the Terminal Warehouse, therefore, reinforced concrete has been used wherever possible to do so, viz., foundations, columns, girders, beams, floors, roof, exterior walls, stairs, pent-houses and gravity tank on the roof for the automatic sprinkler system. In this way the entire building is practically a monolith, and has tremendous rigidity. The structure

is like a solid box; it may be overturned, but hardly collapse. It is of great importance, however, in designing and constructing such work that the proper amount of steel reinforcement be incorporated, and not only for adequate strength, but also to prevent shrinkage, for it is well known that concrete alone will shrink considerably and cause cracks, whereas the shrinkage stresses can be successfully taken by steel reinforcement in the shape of bars or heavy expanded metal, as was done in this case.

The exterior walls are six inches thick and finished on the outside with a rich cement mortar splashed on with a paddle so as to give a rough finish. This thoroughly preserves the character of the material and is highly effective. The front was given some architectural treatment by simple means. The moulding and panels are made with square sections and were produced by simply nail-



COLLAPSIBLE FIREPROOF DOORS, MADE OF CEMENT ON A STEEL FRAME—TERMINAL WAREHOUSE.

Kansas City, Mo. Elzner & Anderson, Architects.

ing boards and strips of proper shape on the inside of form work. The floors are solid concrete four inches thick, the top being smooth trowel-finish like granolithic sidewalk work. They are drained to outlets at various points and connected with the sewers, so that in case they are flooded the water will run off rapidly. The floor slabs are reinforced with heavy expanded metal. The beams and girders and columns are reinforced with twisted steel bars, and the beams and girders further reinforced with expanded metal at the ends to take up the shearing stresses. The entire construction was figured for an available live load of 300 lbs. per sq. ft. on the first floor and 250 lbs. on the second, third, fourth and fifth floors. The specifications required tests to be made under the condition that at an age of sixty days the floors must sustain two times the specified floor load and not deflect more than 1-800 of the span. In accordance with this provision, tests were made which were eminently successful.

The interior partitions are also fireproof, being made two inches thick and entirely solid, reinforced with small channel irons placed vertically 16 inches on centers and let into floors and ceilings. The doors are also fireproof, being constructed of steel channel frames filled in with cinder concrete from one and a half to two inches thick. These doors are used throughout, not only for ordinary purposes but for all the numerous storage bins with which the building is equipped. The windows throughout are made of heavy galvanized iron and double-glazed with quarter-inch wire glass, so as to make an absolute fire stop which is not always the case with single-glazed windows.

The entire building is equipped with an automatic sprinkler system which, while not a real necessity in this case, was nevertheless installed as an additional precaution against fire which might damage the contents, although even this would appear to be a remote possibility owing to its being confined in fireproof bins within a thorough fireproof building. The owners, nevertheless, wished to omit nothing that would add to the safety of the contents as well as the building. Even the electric wires are run in iron conduits built into the concrete, where there can be no short-circuiting.

As was stated in the beginning, every particle of wood was avoided in the construction of this building. This point was carried out consistently; even the elevators have steel girders and steel cars with steel plates for floors. In short, this building has been constructed without the use of a single inflammable substance, and is so thoroughly fireproof as no building was before, that it is firmly believed to be capable of successfully resisting any fire or conflagration no matter how fierce, something that cannot be fairly claimed for any type of building that has ever been constructed.

A. O. Elzner.

Some Interesting Studio Apartments

In the Atelier Building, 33 West 67th Street, New York

THE HALL IN MR. R. W. VONNOH'S APARTMENT.
PHILLIPS & JULLIEN, DESIGNERS AND DECORATORS.

IN Mr. R. W. Vonnoh's living apartment the wainscot and panel effects are obtained by applying wood mouldings to the walls. The general color throughout is a grayish ivory tone. In the dining room the panels over the wainscot and the ceiling are a Japanese dull gold paper, the walls making a good background for the colored plaques and Japanese prints. The brackets on wainscot give an apparent weight to support the walls above. The beams in this ceiling and, in fact, all the ceilings are structural, and are rather heavy for the scale of the rooms, no attempt having been made to accentuate them, wood mouldings giving simply a finish. In the library the bookcase and seat effect a pleasing line with the mantel and leaded windows. The walls are covered with a soft neutral green material on which are hung water colors and prints.

THE STUDIO OF MR. J. WILLIAM FOSDICK.

33 West 67th Street, New York. Phillips & Jullien, Designers and Decorators.

Mr. Fosdick is to be complimented on the successful results obtained in his studio, where the dignified architectural treatment and restful color scheme are apparent upon entering.

The ornamental panels taken from an old French Gothic chest are most successfully placed in the high chairs and mantel frieze. The woodwork is oak, treated in dark brownish tones, with the carved panels and ornaments brought out in gold and rich color. The walls are hung with old bluish green leather, forming an appropriate background for Mr. Fosdick's antique tapestries and paintings. The ceiling is dark blue in tone, and the structural beams are grained like wood, supported by old Gothic brackets in gold and color.

THE DINING ROOM OF MR. J. WILLIAM FOSDICK.
This room adjoins the studio and is most harmonious, the woodwork being a deep mahogany and walls a rich dull gold.
Phillips & Jullien, Designers and Decorators.

THE LIBRARY IN MR. A. MULLER URY'S APARTMENT.
33 West 67th Street, New York. Phillips & Jullien, Designers and Decorators.
The woodwork is oak, brownish green in tone. The walls are hung with a soft green hand-blocked paper. The wood cornice is to cover the irregularities of the structural beam work. the over mantel being brought out to support it. The mantel facing of gray cement completes

THE LIBRARY IN MR. R. W. VONNOH'S APARTMENT.
Phillips & Jullien, Designers and Decorators.

THE DINING ROOM IN MR. R. W. VONNOH'S APARTMENT.
33 West 67th Street, New York. Phillips & Jullien, Designers and Decorators.

NOTES & COMMENTS

PROGRESS IN ARCHITECTURAL EDUCATION

About ten or a dozen years ago there took place in the different architectural schools throughout the land an awakening which even to-day is only in its elementary stage. The number of American students of architecture returning every year from the Ecole des Beaux Arts in Paris was beginning to assume large proportions. Before that time there had already been in existence for some years the American Society of Beaux Arts Architects who were paving the way in this country for the awakening that we speak of. They were a number of men, many of whom knew and had enjoyed our system of architectural education, and who had been fortunate enough to have enjoyed also the French training. These men arriving back in their own country, bringing with them a certain amount of the French spirit and enthusiasm, pledged themselves to spread and promote here the traditions of their adopted school; but alas, the surroundings were lacking, so that while their French brethren had about them many of the monuments, and especially the atmosphere that is so conducive to the proper frame of mind, the poor American students had to content themselves with photographs and reproductions, hoping at some future time to be able to see the real objects. This was indeed a great handicap and one which could not be overcome.

The French system of architectural education has, however, been adopted by our architectural schools with more or less modification, and it is our aim to set forth in the Architectural Record, in a series of illustrated articles just how their curricula have been affected by the French influence and how the methods of the foreign school have been adapted to our conditions. The text will be by the very best authorities, the men who are actually and actively engaged in the working out of the system, and the illustrations will be the direct results obtained by the students under this tuition. Professor Hamlin, executive head of the School of Architecture at Columbia University, will open the series in this issue. Articles by the heads of other schools will follow.

ARCHITECTURE'S OPPORTUNITY

The Springfield Republican, reprinting from this department a note on the plans for reclaiming the river front at Springfield, says very truthfully: "It is a matter that architects can appreciate, because they are painfully aware of the unsatisfactory conditions under which work is done in most American cities for lack of any intelligent plan or enlightened public interest; a building is a building, and has to take its chances. But the higher ideal of an ensemble—of a city finely planned, with central groups, spacious squares and beautiful water approaches—is at last taking a strong hold upon the American people—not as a vague dream, something to see abroad and celebrate by sending home a picture post-card, but as a practical ideal to be realized soon and without any extravagant cost at home. Travel has done much, and the multiplication of good pictures of beautiful buildings, streets and squares has had a prodigious educational effect. Ensemble, too, has been the great lesson which the world's fairs have taught. If the architects are as happy in their inspiration as in the opportunity opened by the construction of our two civic groups and the treatment of the waterfront, our city will some day be worth a long journey to see." This is lay appreciation of a great fact that should be inspiring to architects. The replanning of cities for aesthetic effectiveness holds out richer promise to architecture than to any other profession. It proffers a splendid opportunity; which, as ever, is accompanied by a responsibility that challenges the best effort and the highest talent.

REPORT OF THE NEW YORK ART COMMISSION

The report of the Municipal Art Commission of New York City shows that during 1906 it passed judgment upon plans calling for an expenditure of $27,000,000. The aggregate total is certainly so high as to make the existence of the commission worth while. For it is to be remembered that even where it simply approves the plans submitted and calls for no modification, the thought that

the commission will pass upon them, and the desire to avoid the public humiliation of the commission's disapproval, has no doubt a good effect on the designs. What the commission cordially approves might not in some cases have been so good if there had not been a possibility of disapproval. But more important than the aggregate of the cost of work submitted to the commission is the proportion that this bears to the full total of work contracted for. This proportion undoubtedly is rising. Significant also is the fact that the commission's adverse judgments are accepted with less opposition than formerly. Another feature of the report which invites consideration is that some forty works of art, consisting of fountains, statues, paintings, and memorials—nearly all of them gifts—were passed upon. The number is not large for so big and rich a city as New York; but it is fairly respectable and more than most New Yorkers themselves would probably have expected. In no city in the world do individuals give more than in New York for public purposes privately administered; but to give to the municipality itself has been considered another matter.

ECHOES OF THE LEAGUE DINNER

Touching on the city's attitude towards art, at the last annual dinner of the Architectural League of New York, Richard H. Hunt remarked that while three out of the ten members of the Municipal Art Commission were artists, only three out of the twenty-four members of the board of trustees of the Metropolitan Museum were of that profession. Under the circumstances he thought the city was setting an example to the Museum. Another well made point was that of Royal Cartissoz. This was a protest, unexpected in that gathering but much needed, and there, above all places, against the extravagant luxury of the age. A report of his speech quotes these earnest words: "No one plays more into the hands of this sentiment than do you. These French dwelling houses are one of the most appalling things architecture has ever known, each one with its marquise a mass of plate glass and iron, and all the frippery the fashion wants. Then in office buildings a bank does not look like a bank, nor a department store like itself. They are pseudo palaces. There is nothing like simplicity." Even in municipal construction, he added, things are done on too sumptuous a scale. There seems now to be a general forgetfulness that the beautiful is rarely the ornate, and that simplicity lends itself most readily to dignity. Where its influence reaches, the Arts and Crafts movement has done much for interiors; but there is yet grevious need for plain speaking and plain building.

ANOTHER BILLBOARD STORY

Some months ago the story was told in this department of a big Heinz sign, on the boulevard in Honolulu, that was removed by the advertisers themselves because the people protested. Fortunately, that sort of thing happens not once but every now and then. If it happened often enough, there would be fewer billboards put up. It lies with the people to make protests that are reasonable and strong when they feel outraged by a sign. A reader of the note about the Honolulu experience sends the story of a protest nearer home—at Walpole, Mass. It is interesting for its details of how the work was done. A clothier in a neighboring town ordered a signboard "to be placed as near as possible to the center of Walpole, on the main highway." The billboard man executed the commission to the letter, for after three days' effort he found "a place right in the centre of the town, within a stone's throw of the town hall." The correspondent says: "It was the first signboard that had been put up in Walpole. It was some forty feet long and fifteen or twenty feet high. We called it a monstrosity—nothing else." For a week or more there was lively criticism. Then an individual, a business man, wrote to the billboard man and to the advertiser. He told them that he was willing to use diplomacy first, but that there were numerous threats against the board, and something might happen. He had replies, but they were not very satisfactory. The advertiser, it seemed, had gone South and his subordinates hesitated to act for him. Then the business man took the matter up with the Walpole Club. "I am very glad that I did," he says, "for I think it is always better to work through an organization." The club got up a stereopticon lecture on the billboard evil and sent to all the seven or eight hundred landowners in the town a letter that would tend to prevent any more billboards. At last the advertiser himself was heard from—and at this point it is fair to give his name: F. J. Kennedy, of Hyde Park. He wrote that he would have the board removed, at his own expense, saying: "We

have no wish to maintain a board that is distasteful to your community. Furthermore, we wish to thank you for your forebearance in the matter." He was as good as his word, and he acted at once—without waiting until the ground softened, when the work might be done more cheaply. In removing the board he won back the friends he had lost by its erection, and incidentally learned that it would have been better not, to have put it up.

SKY-SCRAPERS IN A HALF-LIGHT

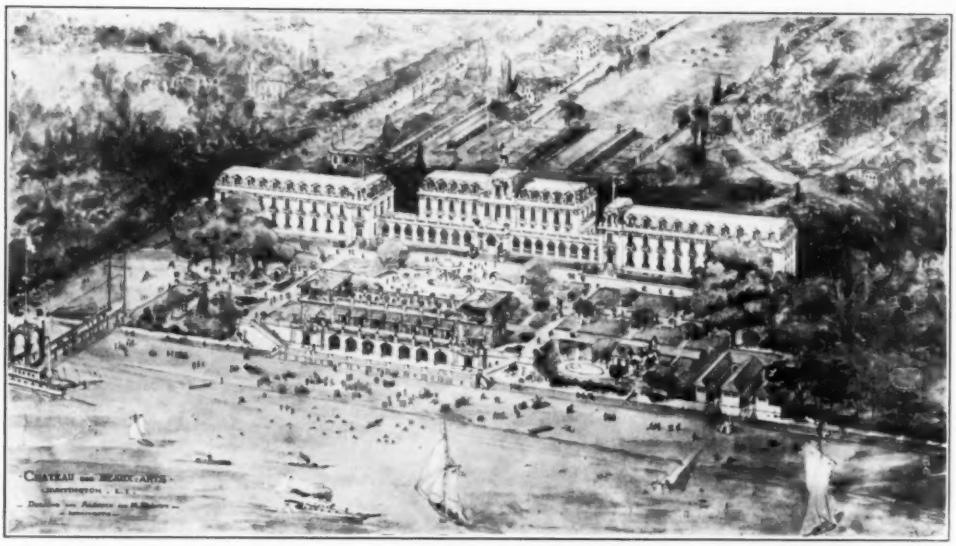
The beauty of the sky-scraper is the subject of a suggestive article by Giles Edgerton in a recent number of "The Craftsman"; and lovely reproductions of eight of Mr. Pennell's etchings emphasize the text. "Half way across the bay," the article begins, "the mist thinned out a little, changing from deep gray to pale rose and pearl. The water grew luminous as the edge of the mist trailed through it, and a city of enchantment rose through the scattered vapors—a city of uneven lines, of eerie towers that gleamed high with many orange lights and of low dwellings that rested in shade at the foot of high walls. As the mists gathered and fell apart from time to time, the city took on fresh wonder. It seemed piled up into the heavens." Ruskin, the author reminds us, declined to visit America because he could not live where there were no castles. "If to-day he could sail across South Ferry at dawn or twilight, or walk up Broadway through a mist, or cross Forty-second Street near the Times Building in a snowstorm, he would forget that we have no castles." But the pity of it is that even Mr. Edgerton would wish the atmosphere on these occasions to be of a semi-veiling character. If in the strong light of New York's brilliant sunshine Mr. Ruskin, with his love of sincerity to every uttermost detail, should see our skyscrapers, his comments would be more forcible than flattering. And yet the structure in its mass is genuine. The author claims it as "the first absolutely genuine expression of an original American architecture." It has dared to exist; and though it has rarely ventured to throw off the ill-suited garment of convention, which deceives nobody, it may do so now that there is admission of its impressiveness and beauty in a half light that shows its bulk and hides detail. And it is the half light alone that concerns Pennell and Edgerton. In that New York "redeems herself from ugliness."

CHINATOWN ARCHITECTURE

Mention has been made here of the plans, prepared by request of the Merchants' Association of San Francisco, for a distinctly Oriental type of structure that would be available for the rebuilding of Chinatown. The San Francisco Real Estate Board has followed this lead by adopting resolutions approving the idea and asking property owners within the Chinatown district to rebuild "with fronts of Oriental and artistic appearance." The board makes no disguise of its main thought: that such architecture will be picturesque in appearance and hence attractive to tourists and visitors. There is clearly lacking that ethical motive which might inspire an architecture of conspicuous merit; but at least there may be a more harmonious result than a row of huge rectangular pigeon-holed soap-boxes to house swarms of Orientals and to stand as the material sign of their presence. One building, curiously combining Western plate glass and straight lines with Eastern curves and twists, is already under construction on a conspicuous corner. It is the intention to illuminate the cornices, hips and other salient features with colored lights, and two great lanterns hang from the corner tower. The lower floors are rented for a store, and the general effect is rather surprisingly satisfactory.

A CHURCH PLANS JURY

The Protestant Episcopal diocese of Newark, N. J., has before it a proposition to establish a commission on Church Architecture. The canon, offered by the Rev. Walter Gwynne, of Summit, N. J., requires that the commission "shall consist of the bishop, together with two clergymen and two laymen, to be elected annually by ballot." It declares it the "duty of every parish, by its rector, wardens and vestrymen, to lay before this commission the plans and specifications of any new church or chapel, for their counsel and advice; which counsel and advice shall be given in writing within one calendar month after the receipt of the said plans and specifications." The proposition is new to the church in America, and as a long step in the right direction it has much to commend it. Action was deferred, at Mr. Gwynne's suggestion, until the May meeting, the resolution resting meanwhile in a committee of which Mr. Gwynne is chairman. His associates are two clergymen and three laymen;



CHATEAU DES BEAUX ARTS.

Huntington, L. I. Delano & Aldrich, Maurice Prévot, } Architects.

and Mr. Gwynne, remarking that the canon "is in complete harmony with the different organizations in our cities for the improvement of civic art," expresses the belief that it will be adopted. It ought to do much to protect the small and poor parish on the one hand, and the rich and uncultured on the other—if they follow the recommendations of the commission.

AMERICAN ART IN IRON AND BRONZE

The issue of American Art in Iron and Bronze for January, 1907, published by John Williams, Inc., is worth special attention, because of the large number of illustrations which it contains of some of the most beautiful bronze doors executed by American sculptors. Among the doors illustrated in this publication are those of the chapel of the General Theological Seminary, designed by J. Massey Rhind; those of the Baltimore Court House, designed by Wyatt & Nölting; those of the Memorial Chapel at Stanford University, designed by Clinton Day; those of Nelson Robinson Jr. Hall, designed by McKim, Mead & White; those of the Congressional Library at Washington, designed by Olin Warner and Herbert Adams; those of St. Bartholomew's Church in New York, designed by Andrew O'Connor and Herbert Adams; those of the Carnegie Library in Pittsburg, designed by Alden & Harlow; those of the residence of Mr. George D. Pratt in Brooklyn, designed by Babb, Cook & Willard, and those of the Boston Public Library, designed by Mr. Daniel C. French. The comment of Mr. Russell Sturgis on Mr. French's doors, which is copied from Scribner's Magazine, brings out the peculiar originality of Mr. French's design. Other doors, of which illustrations may be found in the same issue, are that of the National Park Bank, designed by Donn Barber; those of the Knickerbocker Trust Co., designed by McKim, Mead & White, and those of the Industrial National Bank in Pittsburg. It would be difficult to find in any other American periodical such a complete collection of such interesting work of this kind.

CHATEAU DES BEAUX ARTS

We illustrate herewith a perspective drawing of the Château des Beaux Arts of which a plan and an elevation were given in the February issue. The establishment holds interest on account of its novelty, being in fact an entirely new departure in the manner of hotel planning. The buildings are to be rigidly constructed and kept open, we understand, the year round, to be a seaside resort in the summer and an objective point for tourists during the seasons when other summer hotels close to New York are usually closed. The need of such a place of refuge and refreshment as well as of pleas-

ure, has long been felt, and its success as a business venture seems reasonably assured, as the location is good and much frequented at all seasons by automobilists and other pleasure seekers. If the idea takes, as it fully deserves, we can expect to see many similar undertakings under way in the near future. Many of the present summer hotels will be forced to meet a new kind of competition which will be worthy of their best endeavor, and force them to give their patrons better accommodations for their money. It will at the same time offer them new opportunities for profit, and perhaps on a more wholesome basis, insuring a good, even business the year round, for which preparation could safely be made, rather than a "rush season" of four or five months with heavy risks and uncertain returns. This condition of the seaside and suburban hotel business is, beyond question, largely responsible for the unsatisfactory buildings and erratic service of many of them.

We append a short descriptive explanation of the Château des Beaux Arts, by the architects:

"This establishment is now being erected at Huntington, L. I., from designs by Delano & Aldrich & Maurice Prévot, architects, for the owners, Messrs. Bustanoby Bros., of the Café des Beaux Arts, New York City.

It will be partially opened to the public this spring and the rest completed at an early date. A hotel will be combined with a restaurant, bathing pavilions, garage, etc., the whole treated somewhat in the manner of certain French establishments, such as the Pre-Catalan in the Bois de Boulogne, with all possible resources of landscape gardening and decorative architecture. Along the edge of the bluff, overlooking the beach, stands the restaurant building, two stories in height, with a café below and large and small dining-rooms above. Between it and the hotel proper is a terrace treated with small pavilions, under which meals will be served by means of a tunnel running from the kitchens. A number of villas will also be erected on the property, to be conducted in connection with the main hotel and restaurant. The whole is being constructed of reinforced concrete."

THE IMPLIED CONTRACT—CERAMICS MERITORIOUS AND MERETRICIOUS.

In the matter of building materials there are many hopes and expectations unrealized. In all of them, undoubtedly, there are certain expectations, the realization of which is beyond peradventure. But in the shifting demands that are made of such materials, it is sometimes difficult to keep the eye fixedly concentrated on the demands that may be regarded as fundamental, so fundamental that their regulation is never particularly specified.

The shifting is bound up with the point of view of artistic expectation. At one period there is a rage for frank expression as it is called. Every material that is used must show what it is, and in order to show this plainly, it must emphasize its limitations or its faults. At another time, other ideals prevail, and materials must be refined and finished, reassorted and reselected, saturated with fillers and covered up with surfacing materials whatever their character, or twisted and tortured in their treatment until they resemble something quite different, but fit in with the particular style that is uppermost in the public mind and answers its ideals of good taste.

In the heat of argument, during the discussion of these movements, and in the attempt to justify them in practice, the artistic aspect of materials becomes so paramount that the technical fundamentals which are taken as a matter of course, are quite overlooked, and never thought of until the use of the building brings them in a very short time into prominence.

It will be no harm in this connection to discuss what has happened with some of the clay products. The manufacture of terra cotta for the exterior of buildings grew to the fulfilment of a practical need. The steel structure of tall buildings arose and with it the demand for a light wall to fill in the separate stories, and shut in the enclosure from the outer air. The wall of the steel structure became in the eyes of the builder no longer a wall built as a structural mass, but a curtain which in accordance with the needs of construction could be hung in the ninth story or in the first, quite irrespective of the feeling that every wall must be built from the ground up.

The hollow and the comparatively light terra cotta brought in addition to its advantage from this point of view, facility of multiplication in plaster molds and therefore cheapness. It was also unfortunate enough to be made from clay, and therefore in an infinity of tints. These delusive advantages also brought with them rigid conditions, and how these were ignored every architect knows.

Because clay shrinks in the fire, and shrinks irregularly and differently, terra cotta is not cut stone, and those who would use it as cut stone bring their punishment down on their own heads, from which mere abuse of the material can hardly be said to

purge them. Because burned clays can be made in hundreds of shapes and tints, it does not follow that it is within manufacturing possibilities to make it of any shade that will suit the whim of the arbiter. So the paint-pot and the turpentine barrel became indispensible materials in the terra cotta shop, where their presence should never be suspected.

A clay product is one that is tried by fire, and the implied contract in its use is that it can be tried in the fire again. Is that contract broken when it is put up in a building nicely painted with an oil paint and heavily loaded with turpentine to give it the soft dull tint of the native clays?

For years the difficulties attending the making of floor tiling from clays fixed the attention of the architect constantly on the question whether the slightest technical requirement could possibly have remained unfulfilled. The tile were scrutinized not only with the straight edge but they were laid in the floor under skirting lights to make sure that in this piece or that the slightest variation from the true level did not exist. As it was known that no two pieces from the tiler's press had absolutely the same shrinkage from fire, and as small variations in the size can only be equalized in the cement joint between the tile, the product was measured and criticised and the joints made the object of discussion until the standard requirement was that the individual pieces should not vary from each other 1-32 of an inch in size.

Again the variation of shade in the fire became the object of anxious solicitude. Over all these requirements, the fundamental one which was not forgotten by the tile-maker, namely, that the clay baked must be absolutely matured and not be capable of scratching with a steel point was so completely forgotten (because so constantly met) that it disappeared from the minds of tile users as something to be thought of.

And now there comes a gentlemanly amateur from Pennsylvania whose cultivated eyes detect that the hypercritical anxiety of the architect has robbed the tile wall and floor of its individuality by reducing the joint to a hair, and the color of the surface to the monotony of paint. Playing with that fascinating toy the fire, in its effect upon that fascinating material which can be given any form by the hands, he sees that the most interesting flashings and tintings can be produced by the most fusible clays at very low heats. He takes these to the architect, who is unwilling to consider anything thus far in the tile-maker's art, but the complete fulfilment of the rigid fetters into which his demands had forced it. He is fascinated by the sports of the flame displayed by his amateur friend, and over his admiration he forgets the fundamental requirements of the baked clay tile, that it must be matured in the fire. He has always forgotten this, and he forgets to take out his jack-knife and try it upon the new sport that is recommended to his use.

It is needless to say that a year or two of wear of these meretricious productions in the floor display that they are not what they pretend to be. No one suffers but the client, and he has paid his bills some time ago. Meanwhile it is an ill wind that blows nobody good. If the architect will allow a small proportion of the fascinating qualities which are natural to that flamed-burned product the "tile," he need not sacrifice the meritoriousness of its durability, if he will but accept the meets and bounds of each of the qualities in a rational degree.

The Art of Piano Making

We are now in a century which we like to call America's age, the age in which we have made ourselves a great nation, and as we proudly think, solved many problems that the Old World passed on to us.

As we survey our triumphs of government, art, science and industrial invention, among them is certainly our own art of piano making, in which we have outstripped all other nations and formed a school for the world.

No product of human ingenuity has been the outcome of a steady and systematic growth from age to age by more demonstrable stages than our present day piano. It is the most remarkable of all musical instruments in that it can take the place of an entire orchestra in manifold effects of tone and has reached the highest form of perfection both in art and science through the patient labor and life devotion of Theodore Steinway.

It is not our object to treat of the interior mechanism of the piano with its marvelous tonal qualities, but of its closely allied relationship to architecture, neither of which seek to imitate nature nor to express the effects and inward feelings, but rather to embody the feelnigs themselves.

Toward the end of the nineteenth

No. 1.—Gives the exquisite simple beauty of the harpsicord shape of the early Colonial period. The sides and open lid are painted in allegorical subjects after Boucher.

No. 2.—Is of rich mahogany with Bombay and Intaglio surface, fitted with ormolu mounts of Louis XV. period. The whole work is gilt, and the painting under the lid is after a Watteau design. The music is lighted by electroliers.

century we began as a nation to wake up to the fact that our furniture was inartistic, and an immense all around improvement was the result. Many of our best architects and artists interested themselves in the movement, but failed to include in this decree (that all things shall be beautiful and of due proportion) the piano cases which were equally barbarous in their want of artistic refinement.

No. 3.—Is an exquisitely graceful piano of dark mahogany mounted in carved gilt with vertical veneer of a lighter shade surrounding the rim. The whole speaks most eloquently of the artistic control of the handicraftsman and the artist working together.

No. 4.—Is a parlor grand of solid mahogany, mat finish, carved in relief, the legs being connected by a stretcher.

This was not so in England, however, for at this time we hear of the important work done by such men as Robert Adam and Chippendale, who paid considerable attention to the organ both for houses (chamber organs, they call them) and for churches. From Adam we have no less than six designs. In speaking of them, he very truly says, it is a pity that the organs are not better adapted and do not form part of the furniture in all of the well appointed houses of our time. Perhaps the best work was done by Sir

Edward Burne Jones, in which the old harpsichord shape was employed to advantage. There can be no doubt that the painted decoration done from these artists' own designs was both fitting and advantageous.

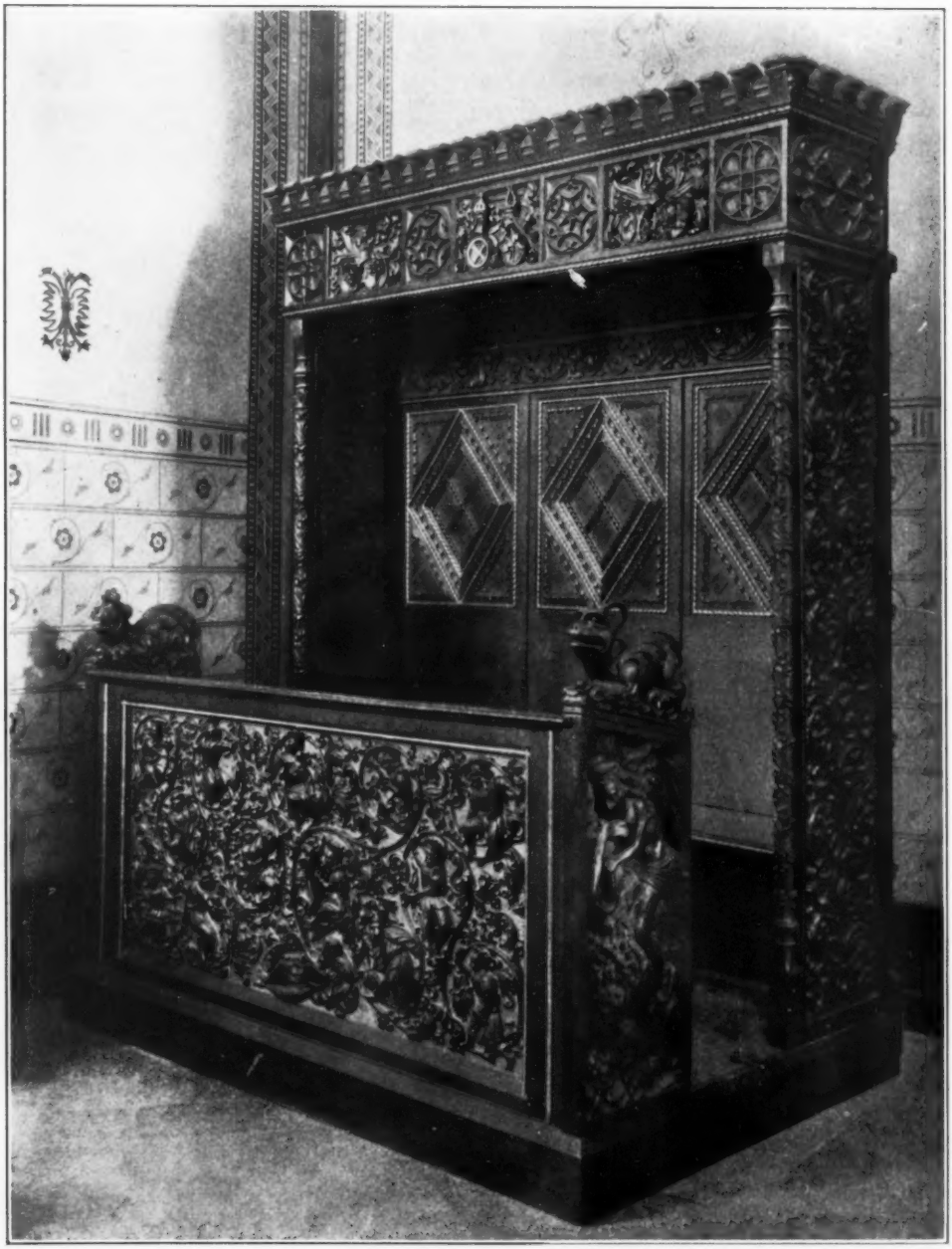
The improvement in furniture has not been followed up by a proportionate advance in pianos as a whole, and much more remains to be done. And who is better equipped to take up and repeat this art revival than our own architects? Who are showing us so plainly that ugliness has had its day, and who knows better than they that the truths of art cannot be bought, but are revealed only? These truths have been revealed to them because they have made themselves receptive of all beautiful things. And it is here that the refinement and culture of the architect can do so much towards influencing his client to a feeling of appreciation in noble design.

At the Steinway studios are gathered many examples of art pianos from various periods of French, Italian, Gothic and Colonial design. These are specimens of the best work in this country. It is here that anyone can come to know what is simple and true and beautiful in form and coloring.

Nos. 5 and 6.—Different treatments of the Louis XVI. period.

Once having seen harmony attained, let us not forget the advantage these beautiful instruments are to our surroundings and the necessity for architects to lend their talents in design. Steinway & Sons will embody their ideas in the making of these art pianos, seeing that the true acoustic qualities of their instruments are perfectly preserved.

J. Burr Tiffany.



JESSE TREE CHOIR-STALL AT VILLACH, GERMANY.